

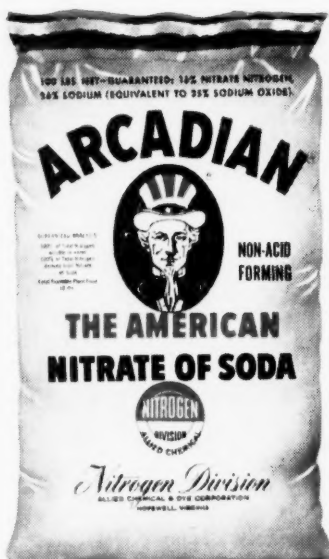
COMMERCIAL FERTILIZER

CONSOLIDATED
WITH THE
FERTILIZER
GREEN
BOOK

Reliable, Dependable Top-dressing Materials

ARCADIAN*, the American Nitrate of Soda, is the genuine, old reliable nitrate of soda many thousands of farmers have used for many years. It contains 16% or more nitrogen, all soluble, quick acting and immediately available to crops. Also contains 26% sodium (equivalent to 35% sodium oxide). ARCADIAN Nitrate of Soda is made in crystals, free flowing and easy to distribute by hand or machine. It is non-acid-forming and contains no harmful impurities.

A-N-L* Nitrogen Fertilizer contains 20.5% nitrogen — 10.2% in quick-acting nitrate form and 10.3% in long-lasting ammonia form. It also contains 9% calcium oxide equivalent and 7% magnesium oxide equivalent. This material is in pellet form and easy to distribute as top-dressing or side-dressing.



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Nitrogen Solutions
(NITRANA* and URANA*)

Urea Products

Sulphate of Ammonia

*Trade-Mark

AUGUST, 1953

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a symbol of quality
and reliability

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Sulphuric Acid

Insecticides and Fungicides

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One-Stop NITROGEN Service For Fertilizer Manufacturers



Nitrogen

FERTILIZER MATERIALS

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LION AMMONIUM NITRATE FERTILIZER—For direct application or formulation. Improved spherical pellets. Guaranteed 33.5% nitrogen.

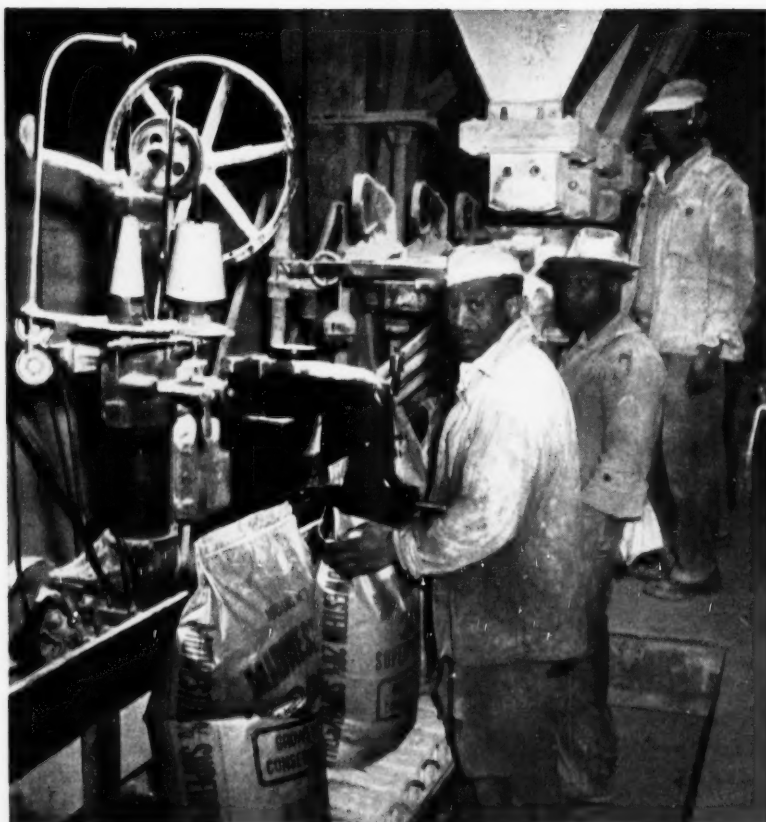
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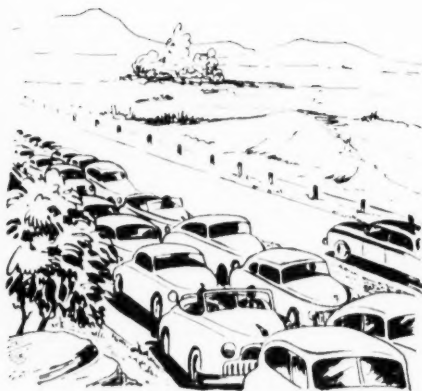
*Thousands of tons
mined daily,
but where does it all go?*

Did you ever have the misfortune on a steaming, sticky, sultry day to sit it out on a crowded parkway, bumper to bumper, waiting for traffic to clear? No doubt your thoughts were plenty sulphurous but probably not along the lines we have in mind.

We're thinking of the mineral Sulphur and its link with the automobile. Each car accounts for a substantial poundage of Sulphur, some estimates put it at around 25 pounds for the average car. Give or take 5 pounds, it shows that a tremendous tonnage of Sulphur is needed each year to put cars, buses and trucks on the road ready to operate. And don't forget the tire and battery replacements going on every day.

Sulphur enters the automobile picture through the tires, steel sheets, plated and plastic fittings, glass, battery acid and parts, copper tubing and wiring . . . all of which call for the use of Sulphur or its compounds in connection with their manufacture.

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COMMERCIAL FERTILIZER

ESTABLISHED 1910

August, 1953

Vol. 87 No. 2

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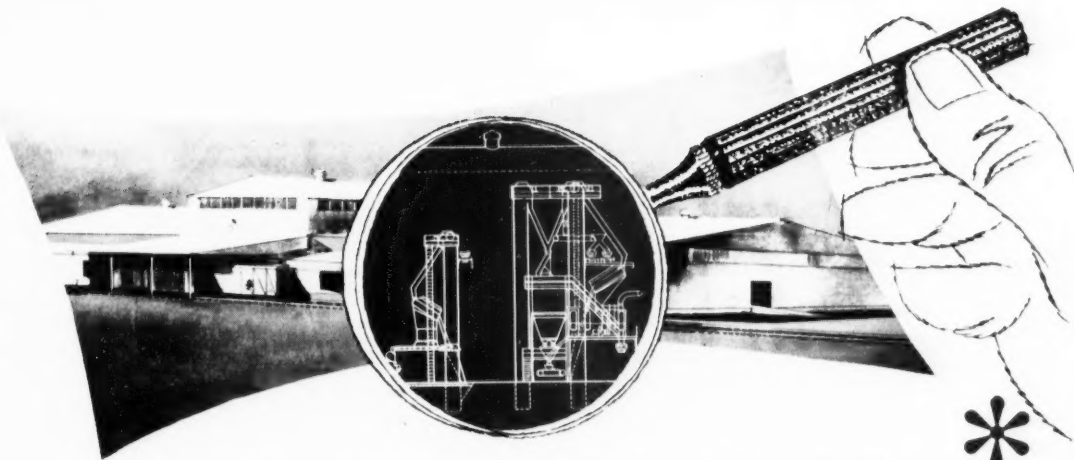
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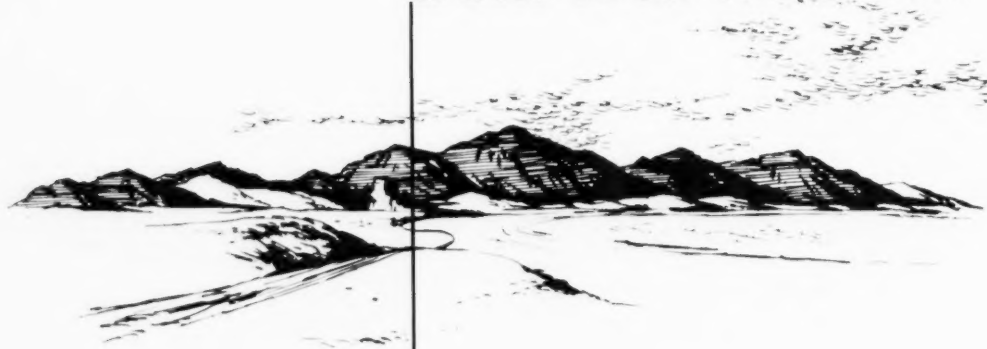
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American Potash & Chemical Corporation

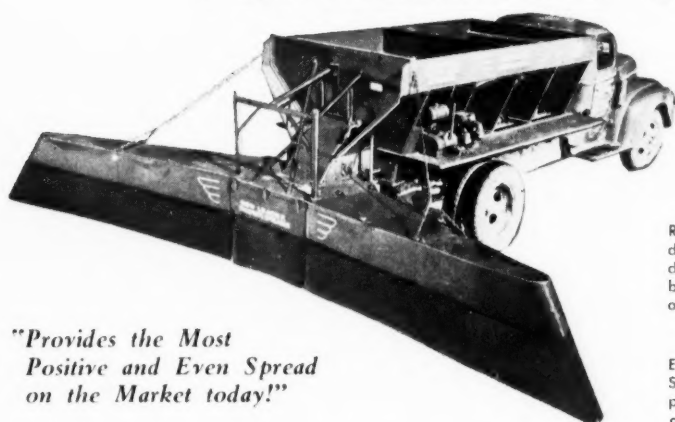
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10. And now! The first commercial fertilizer spreader with distributor discs driven at a constant speed by a separate motor. Conveyor chain positively synchronized with speed of rear truck wheels, assuring full width spread at all times and uniform distribution.



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August, 1953

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JUST AROUND THE CORNER

By Vernon Mount



IN RUSSIA it is one down and probably thousands to go, as Beria's key men are liquidated and go down the drain with him. But he is only one. As I said several months ago, long before Beria got the axe, a blood bath will flow at the Kremlin itself, until one man emerges as sole dictator. Meanwhile, the army of Russia is a big question mark--and while there's much talk of internal weakness in the USSR, we'd better keep our guard up.

IN THE USA we are keeping our guard up, despite political wailing about budget cuts. These crocodile tears ignore the fact that the previous Administration has appropriated many millions, still unspent. These will turn out materiel of war, and will help keep our economy running on a high level. Labor is still paid the highest wages in history. Perhaps there's somewhat less overtime in the weekly envelopes--but the worker is a strong market, and will be. As I have said before, the munitions industry is to be a permanent one--in our lifetimes anyhow. And we are set otherwise so there need never be another Depression.

IN EUROPE: A little less of the laissez faire spirit; new courage inspired by Germans who pitted pitchforks against tanks; more willingness to follow the Eisenhower lead in pinning back the Russian ears, now while they have their internal troubles.

Yours faithfully,

Vernon Mount



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You'll find commercial fertilizers and **RAYMOND MULTI-WALL PAPER SHIPPING SACKS** doing a big job.

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Number 1 IN BAG FILLING

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2



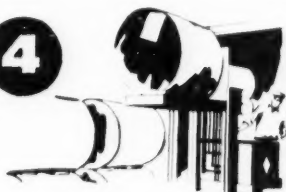
DILUENT FOR INSECTICIDES—With Aquafil you get high concentration which means savings.

3



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4



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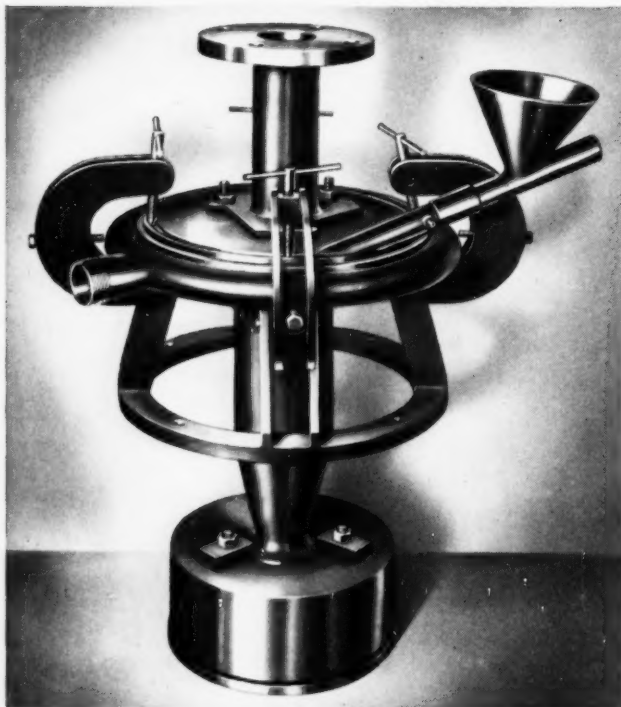


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Announcing the STURTEVANT

MICRONIZER*



Pulverizing Machine for Reducing Materials to Micron Sizes

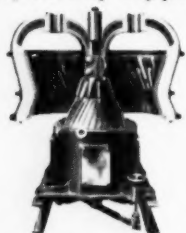
A fluid jet pulverizing machine, the Sturtevant *Micronizer* speeds reduction of materials to low micron sizes. These jet mills are especially applicable in fields where a particle size in microns is desired.

Sturtevant *Micronizer* mills are used throughout industry for reducing non-metallic and metallic minerals and ores, pigments, insecticides, fungicides, pharmaceuticals, plastics, dyes, and numerous other organic and inorganic products.

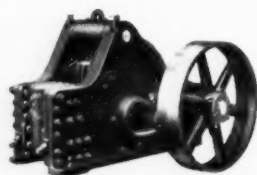
Sturtevant *Micronizer* pulverizers are available in many sizes and capacities. Write for information.

Other Sturtevant Pulverizing Equipment for Rapid Reduction of Materials...

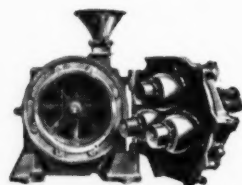
Especially Applicable for Initial Grinding of Products for the Micronizer Mill



ROTARY PIN CRUSHERS for intermediate and fine reduction (down to 10 mesh). Open door accessibility. Soft or moderately hard materials. Efficient granulators. Excellent preliminary Crushers preceding Pulverizers.



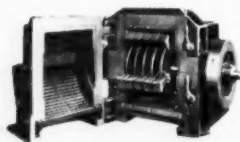
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AIR SEPARATOR for separation of fines to 325 mesh and finer. Increases output from 25% to 500%... lowers power costs by 50%. Capacities 1/2 to 50 tons per hour output.

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WHAT'S HAPPENING TO AGRICULTURE?

Reprinted from the BATTELLE TECHNICAL REVIEW, May, 1953. Published by Battelle Memorial Institute, Columbus 1, Ohio.

The Wall Street Journal tells of two brothers who bought some worn-out farmland in Missouri in 1947. The land had produced 15 bushels of corn per acre in 1946. In 1948, the new owners harvested 125 bushels of corn per acre.

The average yield of potatoes per acre in the United States was 110 bushels in 1930. Yields today average 233 bushels. In Maine, in 1943-50, the average yield was 450 bushels. The President's Materials Policy Commission predicts average yields of 500 to 700 bushels per acre in the Northwest by 1975, with production as high as 1,000 bushels an acre where irrigation is used.

Cotton in the United States averaged 287 pounds per acre in 1950. In 1930, the average yield was 157 pounds. In certain areas of California cotton runs as high as 660 pounds per acre. Regional cotton yields as high as 1500 pounds are predicted for the future.

What is happening to agriculture in the United States? How can such increases in production be explained? Only a few years ago we were worrying about depletion of soils and our ability to support increased populations at our customary living standards. Now we are producing on "worn-out" land crops that virgin soils could not begin to match. Our main problems in agriculture today are how to distribute and consume the crops we produce.

The tremendous productivity of today is, of course, just a reflection of the Technological Revolution. All of these dramatic increases in crop yields have occurred in the last 20 years. In that period we have learned how to produce and use the plant foods needed to grow luxuriant crops. We have studied crop diseases and pests and have produced chemicals to combat them. We have invented and introduced

It Seems to Me

by BRUCE MORAN



The farmer whose produce or livestock may not be selling except at prices that seem ruinous . . . and may very well be ruinous . . . will find it hard to take much interest now in what the case may be next year. He knows what the case is now—and that's that.

But here is a nation that has added, since the war, more than twice the population of Canada, and is growing at the rate of 2,700,000 people a year. Not just people . . . mouths to be fed. Mouths that will total 175,000,000 in seven years. Mouths that will be 200,000,000 only 17 years from now.

That is all a long way off to the man who has to borrow for next year's crop—but it is the job of everybody who touches agriculture to make him see how vital he is and will be as those 2,700,000 mouths add up year by year.

machinery that enables us to master the land and many of the vagaries of nature. And, not being satisfied with nature's offerings, we have developed vastly superior strains of plants and animals.

Each advance made on the farm has come as a result of a series of highly technical advances made in many phases of technology. The 125-bushel yield of corn achieved by the two Missouri farmers was made possible by the use of approximately one-half ton of commercial fer-

tilizer per acre. This was made economically feasible by the fixation of atmospheric nitrogen—in turn made possible by advances in electrical power generation and transmission, turbine development, improvements in stationary boiler efficiency, and developments in chemistry and metallurgy.

The increased corn crops resulted from feeding by potash and phosphates. These became available in quantity because of a whole series

(Continued on page 67)

INDUSTRY CALENDAR

Date	Organization	Place	City	State
Sept. 9-11	NAC	Essex & Sussex	Spring Lake	N. J.
Nov. 4-5	Pacific N. W.	College	Pullman	Wash.
Nov. 9-10	CFA	Theatre	Carmel	Cal.
Nov. 10-20	Crop, Soil		Dallas	Tex.
Nov. 16-19	NFA	Biltmore	Atlanta	Ga.
		1954		
June 14-16	NFA	Greenbrier	White Sulphur	W. Va.

POTASH INDUSTRY IN THE UNITED STATES

1952

The domestic production of marketable potassium salts reached a new high in 1952, increasing more than 16 percent above the 1951 production according to reports by producers to the Bureau of Mines, United States Department of the Interior. Sales and apparent consumption of potassium salts both increased in 1952, 12 percent and 4 percent respectively, as compared to 1951. Stocks in producers' hands at the end of 1952, more than double the 1951 figure, were 171,807 short tons with a K_2O content of 99,061 tons.

Both imports and exports of potash materials were less in 1952. Imports totaled 363,898 tons (190,862 tons K_2O) as compared to 574,361 tons (313,617 tons K_2O) in 1951. Import statistics in 1952 list East and West Germany separately. West Germany, East Germany, France, Spain, and Chile, respectively, supplied 32, 27, 19, 11, and 8 percent of the total United States import of potash. Exports of potash materials totaled 101,200 tons, 19 percent less than in 1951, with over 97 percent going to countries in the Western Hemisphere.

The production of higher-analysis materials continued to increase and was 86 percent of the total potassium salts produced in the United States. Production of the lower grade muriate (49-50 percent K_2O), manure salts, sulfate of potash and sulfate of potash-magnesia all decreased in 1952. The production of manure salts has dropped from a high of 260,339 tons in 1948 to 8,409 tons in 1952.

The States of California, New Mexico, and Utah continued to supply the major portion of the domestic production of potash. New Mexico supplied over 88 percent of the

TABLE 1.—Salient statistics of the potash industry in the United States, 1950-52

		1950	1951	1952
Production of potassium salts (marketable)	short tons	2,242,647	2,474,870	2,866,462
Approximate equivalent K_2O	do	1,287,724	1,420,323	1,665,113
Sales of potassium salts by producers	do	2,221,920	2,451,913	2,757,252
Approximate equivalent K_2O	do	1,276,164	1,408,408	1,598,354
Value at plant		\$39,774,447	\$44,788,880	\$53,754,316
Average per ton		\$17.90	\$18.27	\$19.50
Imports of potash materials	short tons	381,490	574,361	363,898
Approximate equivalent K_2O	do	200,529	313,617	190,862
Value		\$13,993,974	\$18,543,112	\$13,102,739
Exports of potash materials	short tons	117,137	124,211	101,200
Approximate equivalent K_2O	do	65,047	68,654	56,281
Value		\$5,534,176	\$7,593,646	\$4,836,659
Apparent consumption of potassium salts ¹	short tons	2,486,273	2,902,063	3,019,950
Approximate equivalent K_2O	do	1,411,646	1,653,371	1,732,935

¹Revised figure.

²Estimate by Bureau of Mines.

³Quantity sold by producers, plus imports, minus exports.

TABLE 2.—Potassium salts produced in the United States, 1950-52, by grades, in short tons.

Grade	1950	1951	1952
Muriate of potash:			
60-62 percent K_2O minimum ¹	1,846,459	2,047,793	2,468,436
48-50 percent K_2O minimum	151,547	155,797	150,959
Manure salts	21,532	19,775	8,409
Sulfate of potash and sulfate of potash-magnesia	223,109	251,505	238,658
Total	2,242,647	2,474,870	2,866,462

¹ Includes refined potash and some 93-96 percent KCl.

TABLE 3.—Production and sales of potassium salts in New Mexico, 1948-52, in short tons

Year	Crude salts ¹		Marketable potash salts			
	Mine production		Production		Sales	
	Gross weight	K_2O equivalent	Gross weight	K_2O equivalent	Gross weight	K_2O equivalent
1948	5,108,372	1,069,675	1,841,054	964,940	1,850,976	967,945
1949	4,852,903	1,018,886	1,733,739	927,621	1,744,427	932,497
1950	5,802,004	1,198,021	1,904,565	1,086,996	1,878,094	1,072,772
1951	6,615,891	1,349,572	2,138,439	1,223,139	2,126,391	1,217,617
1952	7,852,732	1,644,034	2,530,596	1,458,029	2,439,042	1,411,125

TABLE 4.—Potash materials imported for consumption in the United States, by major world producers, 1948-52, in short tons (U. S. Department of Commerce)

Country	1948	1949	1950	1951	1952
Chile	64	6,970	20,434	12,305	27,965
France	17,883	29,602	65,534	59,193	70,728
East Germany	14,230	660	188,410	372,409	96,871
West Germany	95	87	49,272	94,878	116,046
Spain	20,618	6,400	259,840	135,576	40,656
Other countries ¹					11,632
Total	52,890	43,719	381,490	574,361	363,898

¹For detailed breakdown by countries see Minerals Yearbook.

²Includes 14,275 short tons from U.S.S.R.

³Includes 32,554 tons from Poland Danzig and 17,974 tons from U.S.S.R.

⁴Includes 11,755 tons from Poland Danzig and 13,906 tons from Belgium-Luxembourg.

⁵Includes 5,477 tons from Netherlands and 2,174 tons from Belgium-Luxembourg.

Prepared by

E. ROBERT RUHLMAN

and

G. E. TUCKER

under the supervision of

W. F. DIETRICH, *Chief,*

Ceramic and Fertilizer Materials

Branch, Minerals Division

June, 1953

domestic potash marketed in the United States and a fifth major producer began operations in that State late in 1952. The potash pro-

ducing companies in the United States in 1952, by States, were as follows:

POTASH PRODUCERS IN THE U. S.

California:

American Potash & Chemical Corp., 3030 W. 6th St., Los Angeles 54, California. Mr. A. M. Blumer, 465 California St., San Francisco, California.

Maryland:

North American Cement Corp., 41 East 42nd St., New York 17, New York.

Michigan:

Dow Chemical Co., Midland, Michigan.

New Mexico:

Duval Sulphur & Potash Co., 17th Floor, Mellie Esperson Bldg., Houston, Texas. International Minerals & Chemical Corp., 20 North Wacker Drive, Chicago, Ill. Potash Company of America, Box 31, Carlsbad, New Mexico. The Southwest Potash Corp., Box 472, Carlsbad, New Mexico. United States Potash Co., Inc., 30 Rockefeller Plaza, New York 20, New York.

Utah:

Bonneville, Ltd., 540 West 7th South, Salt Lake City 4, Utah.

TABLE 5.—World production of potassium salts and equivalent K_2O , by countries 1/, 1947-52, in metric tons 2/ (Compiled by Helen L. Hunt)

Country ¹	1947		1948		1949	
	Potas- sium salts	Equiv- alent K_2O	Potas- sium salts	Equiv- alent K_2O	Potas- sium salts	Equiv- alent K_2O
North America United States	1,728,882	934,282	1,939,998	1,034,077	1,865,715	1,014,586
South America Chile	3,259	900	6,655	1,913	5,020	1,422
Europe:						
France (Alsace)	4,168,725	632,844	4,470,260	683,585	5,285,649	798,510
West Germany	3,455,586	342,409	5,276,348	538,507	7,290,000	748,800
East Germany	(²)	720,000	(²)	1823,000	(²)	(²)
Spain	917,865	195,892	992,743	151,185	918,156	151,542
Asia:						
India	4,211	2,032	3,020	2,540	6,456	3,048
Israel-Jordan ³	123,163	60,830	99,724	55,834		
Japan	2,259	135	1,984	120	3,544	213
Africa Eritrea			115	(²)	420	203
Australia:						
New South Wales	406	30	712	53	436	33
Western Australia	34,882	572	39,759	652	32,782	1,471
Total (estimate)		3,000,000		3,500,000		3,900,000
Country ¹	1950		1951		1952	
	Potas- sium salts	Equiv- alent K_2O	Potas- sium salts	Equiv- alent K_2O	Potas- sium salts	Equiv- alent K_2O
North America United States	2,034,485	1,168,197	2,245,153	1,288,489	2,600,397	1,510,557
South America Chile	(²)	1,442	(²)	(²)	(²)	(²)
Europe:						
France (Alsace)	5,562,000	1,017,800	5,518,800	987,600	46,200,000	1,054,000
Germany:						
West Germany	8,927,219	1,094,286	10,847,520	1,323,913	12,585,300	1,553,700
East Germany	(²)	(²)	(²)	(²)	(²)	(²)
Spain	1,013,333	161,619	1,058,884	172,870	1,052,016	172,644
Asia:						
India	5,589	2,743	6,486	3,251	(²)	(²)
Israel-Jordan ³						
Japan	3,396	203	3,897	(²)	2,614	157
Africa Eritrea	555	264				
Australia:						
New South Wales	406	30	456	34	425	430
Western Australia	919	84				
Total (estimate)		4,500,000		4,900,000		5,500,000

¹In addition to countries listed, China, Ethiopia, Italy, Korea, and U.S.S.R., are reported to produce potash salts, but statistics of production are not available; estimates by senior author of chapter included in total.

²This table incorporates a number of revisions of data published in previous potassium salts chapters.

³Data not available; estimate by author of the chapter included in total.

⁴Estimate.

⁵Year ended June 30 of year stated; 1947-48 is for Palestine. Extracted from waters of Dead Sea.

⁶Production ceased April 1948, due to damage to the plant of Palestine Potash Ltd.

PACIFIC NORTHWEST MEETING BRINGS OUT 300 ATTENDANCE



Dr. Vincent Sauchelli, The Davison Chemical Company; Dr. George Scarseth, American Farm Research Association; Dr. Horace Cheney, Chairman, Soils Department, Oregon State College, Corvallis; W. R. Allstetter, Vice Pres., National Fertilizer Assoc.; Earle Shaw, Chilean Nitrate Sales Corporation; Dr. J. C. Wilcox, Experimental Station, Summerland, B. C.



Ernest W. Hansen, Vice President, Pacific Northwest Plant Food Assn.; John R. Taylor, Jr., Agronomist, American Plant Food Council, Inc.; W. R. Allstetter, Vice Pres., The National Fertilizer Association; F. T. Tremblay, new Chairman, Soil Improvement Committee of the Pacific Northwest Plant Food Association.

Leading speakers from the industry and from agriculture were featured on the program of the fourth annual regional fertilizer conference of the Northwest Plant Food Association when it met at Washington State College, June 30-July 2. In addition to the speakers, the audience gave special attention to a description of the farm-buildup demonstration, sponsored by the association at Benedict Farm. A tour of the Columbia River Basin Reclamation project was the final event of the three-day meeting.

The major speakers, whose talks are given in full in this issue, were Vincent Sauchelli, Davison Chemical; W. R. Allstetter, NFA. They and others laid special stress on the major point under present economic conditions that fertilizer cuts the unit cost of producing a crop. Dr. Sauchelli's emphasis on the need for leadership and salesmanship was well taken. All agreed that chemi-

cal fertilizers can and should play a vital part in the swift development of agriculture in the Northwest.

Over three hundred people attended, coming from the east coast to Hawaii and from Canada to southern California. A number of local scientists from colleges and experiment stations in Oregon, Washington, Idaho, and Utah participated in the program. The fertilizer industry in the same area was well represented on the program and in the audience.

Other national figures participating in the Conference were Malcolm McVickar, agronomist for the National Fertilizer Association, respectively; Dr. John R. Taylor, Jr., agronomist, American Plant Food Council, Inc., Washington, D. C.; Dr. George Scarseth, American Farm Research Association, Lafayette, Indiana; Dr. Eric Winters, TVA, Knoxville, Tennessee.

The Conference was sponsored by the Soil Improvement Committee of the Pacific Northwest Plant Food Association in cooperation with the agricultural colleges and universities of the Pacific Northwest. The program was designed to bring to those in attendance the pertinent facts recently gleaned from research and the results of tested ideas. During the Conference, scientists, extension and SCS specialists, and the technicians and salesmen of the fertilizer industry could evaluate these facts and ideas together, exchange viewpoints, and thus expedite the process of putting the new advances in soil fertility and fertilizer practices to work on the land.

Todd Tremblay is the new chairman, with Norman Hibbert as vice-chairman.

Abstracts Published

While we are publishing in this issue two major talks from the Pacific Northwest Conference, our readers may wish to learn a little more fully what was said there. The abstracts of the conference were published just prior to the meeting, and an inquiry to Washington State College, Pullman, Washington, may develop that additional copies are still available. These papers represent an effort to bring together in one place information needed by Northwestern agriculture, to be relayed to those who need and can use the facts presented.

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in

on



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THE FOURTH ELEMENT

Soluble magnesium—a basic ingredient in mixed fertilizers in many crop growing areas—is commonly spoken of as the *fourth plant food element* in the fertilizer bag.

The practical and economical way to supply magnesium in soluble form is with *Sul-Po-Mag*, a properly balanced combination of *sulfate of magnesium* and *sulfate of potash*. Both are water-soluble and immediately available to soil organisms and growing plants.

Fertilizer manufacturers from coast to coast are including soluble magnesium as the fourth element in their quality grades. Wherever there are magnesium deficiencies in the soil, farmers are profitably using soluble magnesium on a wide variety of crops.

Sul-Po-Mag, which contains magnesium—the fourth element, will give you a better balanced fertilizer. A sales package that will "stand out" at your dealers. A more profitable buy for the farmer. So put it *in* the bag, put it *on* the bag; Nitrogen—Phosphate—Potash—Magnesium. Show that your fertilizer contains an *extra punch* for greater crop quality and yields.

Sul-Po-Mag is produced exclusively by *International* in bulk for mixed fertilizers and bagged for direct application.

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Potash Division

INTERNATIONAL MINERALS & CHEMICAL CORPORATION

General Office: 20 North Wacker Drive, Chicago 6



ALLSTETTER AT THE NORTHWEST CONFERENCE

ECONOMIC ASPECTS OF FERTILIZER RECOMMENDATIONS

Western agriculture is famous for its efficiency. There are many reasons for this efficiency. The resourcefulness and energy of your farmers, the richness of your soil, and the leadership provided by the workers in your agricultural colleges, are among the factors that have contributed to your success.

Unquestionably each of these influences is important. I submit, however, that none of these is the most important reason. I believe the primary reason that western agriculture is efficient is that it has **had** to be so in order to survive. With your principal markets three thousand miles away, the western farmer has had to produce farm commodities of superior quality at lower production cost per unit in order to capture and retain these markets.

Now we are coming into a time when western farmers may have to cut another big slice off their unit production costs in order to keep their heads above water. The much-discussed farmers' "cost-price squeeze" means that farmers will make less money (or lose more) on their crops unless they contrive somehow to cut unit costs of production.

The farm price situation today is serious. Farm prices have gone down about 17 per cent since the post-Korean high point, while at the same time production costs are up. As yet no relief appears in sight. However, individual farmers still can cut their unit production costs substantially and thus remain in a more favorable position to compete profitably in the marketplace. They can do this by stepping

up yields.

I'd like to illustrate this point using field corn in Washington as an example. Corn is not an important crop in Washington, although the average yield is one of the highest in the nation. However, high yields of corn can be raised in Washington at low cost per bushel by simply putting into practice what is already known.

In Bulletin #520 published in November, 1950, by the Washington State College and the U. S. Department of Agriculture, the effect of fertilizer on corn yields in the Columbia Basin is shown.

Among other things, this bulletin shows that corn produced in the Columbia Basin without fertilizer yields about 35 bushels of corn to the acre. However, corn on this land responds very rapidly and very profitably to fertilization. Here is a chart made from data in the bulletin which illustrates the profitability of fertilizing corn in Washington.

There are certain fixed costs in producing corn as is the case with any other crop; these are: seedbed preparation, planting, cultivation, seed, taxes, depreciation, etc. These are estimated at \$57.00 an acre for Columbia Basin conditions. I believe this is a reasonable estimate. It was made with the assistance of Art King, Extension Agronomist from Oregon who is on temporary duty in Washington, D. C. This cost is typical but of course will vary from farm to farm.

The variable costs, which go up as yields increase, include fertilizer and interest. Also, irrigating and harvesting the heavier crop would cost a little more. As you can see, the profit per acre goes from 75¢ for 35-bushel corn to \$29.37 for 58-bushel corn. Fifty-eight bushels is about the average yield in the state of Washington.

If yields are pushed on up to 128 bushels through the use of fertilizer, coupled of course with other good practices, profits go to \$112.78 per

The EFFECT of CORN FERTILIZATION on COSTS and PROFITS PER ACRE in the Columbia River Basin

FIXED COST	VARIABLE COST*	TOTAL COST	YIELD	GROSS RETURN**	PROFIT	COST PER BUSHEL
\$57	—	\$57.00	35	\$57.75	\$.75	\$1.63
57	\$9.33	66.33	58	95.70	29.37	1.14
57	41.42	98.42	128	211.20	112.78	.77

*INCLUDES FERTILIZER, EXTRA WATER, INTEREST AND HARVESTING COSTS

**CORN AT \$1.65 PER BUSHEL

* Delivered by W. R. Allstetter, Vice President, The National Fertilizer Association, at the Fourth Annual Regional Fertilizer Conference, Washington State College, Pullman, Washington, June 30, 1953.

acre. This is a most convincing argument for using adequate amounts of fertilizer at present crop prices.

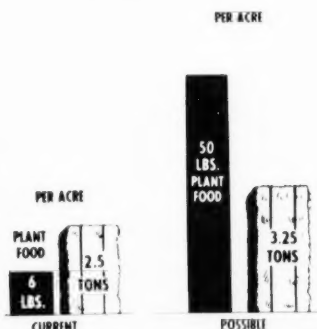
However, you may justifiably ask "What if prices go off?" The answer to that lies in the last column of the table. The 35-bushel field would produce corn at a cost of \$1.63 per bushel. The 128-bushel field would produce corn at 77¢ per bushel. In other words, corn would have to go below 77¢ a bushel before the heavily fertilized field would become unprofitable.

It is quite conceivable that with a production cost of 77¢ a bushel Washington could afford to supply not only all its needs, including an expanded livestock feeding industry but also to export corn to some other areas, notably the big Cali-

fornia market.

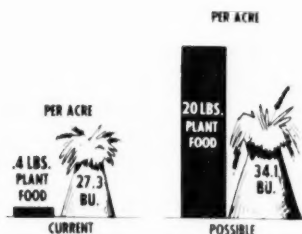
From the data I have, it appears certain that many other crops, most of them in fact, would respond spectacularly and profitably to proper fertilization. I have not tried to calculate these profits as I don't have adequate cost data. I believe, however, that such data would be very helpful to all concerned if it is available or can be worked out. It will, I am sure, show that it is almost universally true that farmers in the Northwest can cut their unit production costs by stepping up yields through the proper use of fertilizer. In this fashion they can enable themselves to compete profitably in an unfavorable market or to earn even more money in a favorable market.

CENTRAL WASHINGTON IRRIGATED— ALFALFA YIELDS WOULD BE HIGHER IF FARMERS USED MORE PLANT FOOD

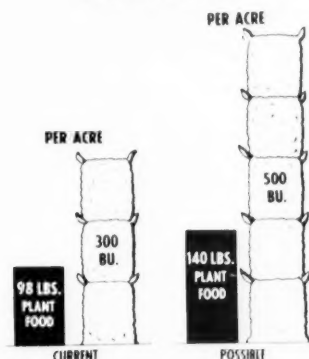


WASHINGTON WHEAT YIELDS WOULD BE HIGHER IF FARMERS USED MORE PLANT FOOD

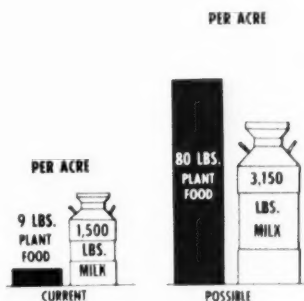
(*ANNUAL RAINFALL 10" OR MORE)



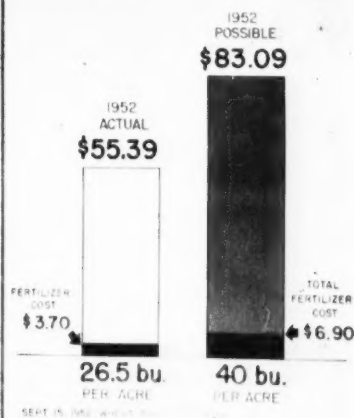
CENTRAL WASHINGTON IRRIGATED—POTATO YIELDS WOULD BE HIGHER IF FARMERS USED MORE PLANT FOOD



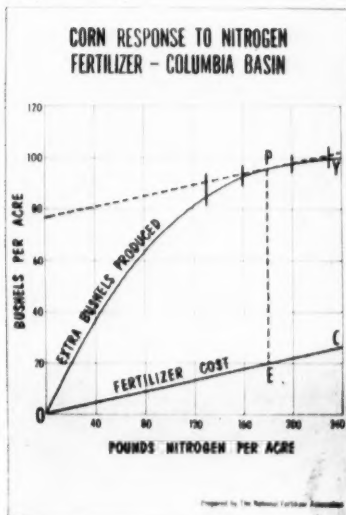
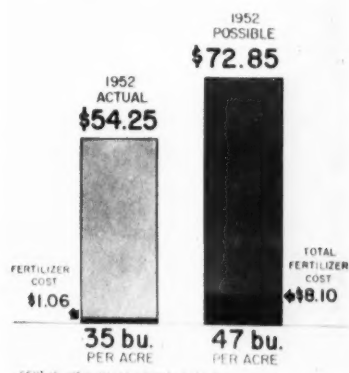
WASHINGTON PASTURE YIELDS WOULD BE HIGHER IF FARMERS FOLLOWED COLLEGE FERTILIZER RECOMMENDATIONS



WASHINGTON WHEAT GROWERS CAN GET \$27.70 MORE PER ACRE BY USING ADDITIONAL FERTILIZER WORTH \$ 3.20



WASHINGTON BARLEY GROWERS COULD HAVE INCREASED INCOME PER ACRE, 35% IF THEY HAD USED ADDITIONAL FERTILIZER WORTH \$7.04 ON EACH ACRE IN 1952.



Dr. S. C. Vandecavaye has furnished some very interesting data on the increased returns which might be expected for Washington crops from applying more fertilizer. They are set forth below in economic terms:

1. Wheat (Where annual precipitation is more than 10")

Present average yield 27.3 bu./acre

Present average fertilization—4 pounds plant nutrients/acre.

Production if fertilized at rate of 20 pounds plant nutrients/acre—34.1 bu.

Fertilizer cost per extra bu. wheat—44c.

Potential increase in return—acre, figuring wheat at \$1.90 bu.—\$10.93.

At these rates, Washington farmers could step up their net income by over \$21 million less increase in harvesting costs.

2. Potatoes in Central Washington (irrigated)

Present average yield—300 bu./acre.

Present average fertilization—98 pounds plant nutrients/acre.

Yield if 140 pounds of plant nutrients per acre were used—500 bu./acre.

Fertilizer cost per extra bushel of potatoes—89c.

Potential increase in return—\$122.00 per acre, figuring potatoes at \$1.50 per bushel.

At these rates potato farmers in Central Washington could push up their net income by nearly \$3 million less increased harvesting charges.

3. Alfalfa

Present average yield—2.5 tons/acre.

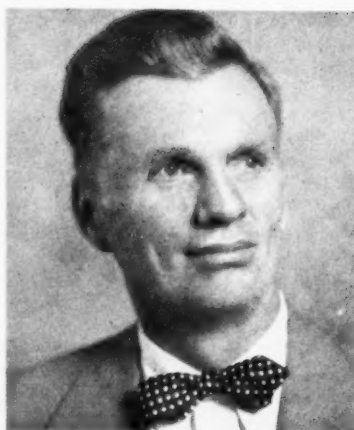
Present fertilization—6 pounds plant nutrients/acre.

Yield if fertilization were stepped up to 50 pounds plant nutrients/acre—3.25 tons/acre.

Fertilizer cost per ton increase—\$4.66.

Potential increase in return—\$7.75, figuring alfalfa at \$15.00 a ton.

At these rates Washington farmers could step up their net income



W. R. Allstetter

by more than \$1 million less increased harvesting charges.

4. Pastures

Present milk yield per acre—1500 pounds of 4% milk.

Present fertilization—9 pounds of plant nutrients/acre.

Yield if fertilization were upped to 30 pounds plant nutrients/acre—3,150 pounds of 4% milk.

Fertilizer cost per extra cwt. of milk—52c.

Potential increase in return per acre—\$65.67, figuring milk at \$4.50 cwt.

At these rates Washington farmers could increase their net income by \$4 million, less additional milking charges.

These data of Dr. Vandecavaye's give an indication of what proper fertilization can mean to western farmers. Particularly interesting are the figures on the fertilizer cost of the extra units of production. This extra production is the lowest cost production on the field. It is this low-cost high profit production that the farmer gains or loses by his decision on fertilizer usage.

These examples of fertilizer profits have been given to emphasize something we all know but occasionally ignore, i.e., fertilizers are applied by farmers to increase their earnings. **It follows, therefore, that fertilizer recommendations should be designed to return maximum profit to the user.** In order to ac-

complish this result, crop response data must be analyzed from the standpoint of economics.

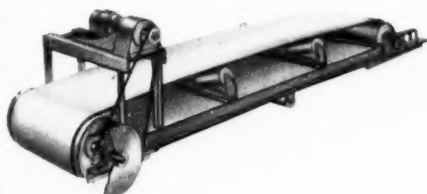
Profit is the soundest guide to fertilizer use. Certainly farmers are interested in knowing the economics of not only fertilizer usage but all other crop improving practices. They want an answer to the question: "How much fertilizer should I use to obtain maximum profit per acre?" Sometimes we find agricultural authorities saying, "Our tests show that such and such a rate will bring about the highest profit per acre. However, we are not quite sure of our data yet and so we will play safe and recommend a smaller rate of application." On the other hand, wouldn't it be just as sensible to say, "we think such and such a rate will bring the greatest profit, but, to play safe, we'll recommend a larger amount of fertilizer?"

Actually, using more fertilizer than the most profitable rate affects profits in about the same degree as using less fertilizer than the most profitable amount, (though the higher rates might return an extra dividend in the form of carry-over benefits to succeeding crops.) I suspect that many farmers will doubt this statement, perhaps on the suspicion that it might be a high-pressure sales argument being made by a fertilizer peddler. It doesn't sound too plausible at first glance. The interesting fact, however, is that the principle was not first stated by the fertilizer industry, but rather, so far as I know, by Dr. John Pesek of Iowa State College of Agriculture. I'll try to illustrate his thesis with the following chart which covers the corn fertilization tests in the Columbia Basin, (previously referred to): See page 25.

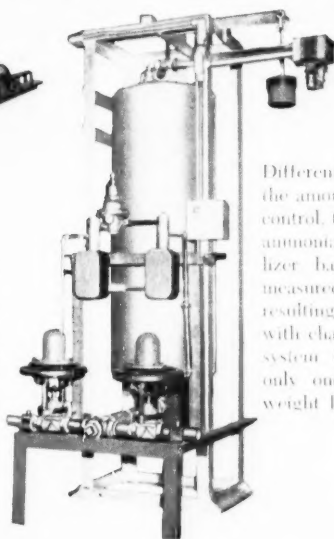
The upper solid line represents the extra bushels of corn obtained from adding nitrogen to a corn field. Also shown is a line representing the cost of the fertilizer applied. In order to plot this cost on the same chart, it is expressed in terms of bushels of corn. Here a value of \$1.65 a bushel is assigned to corn. A dollar and sixty-five cents worth

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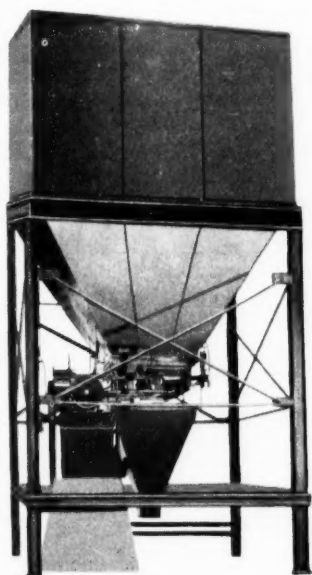


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Different only in the materials used and in the amount of pressure they are designed to control, these tanks are for adding anhydrous ammonia or nitrogen solution to the fertilizer batch in the mixer. Solutions are measured by weight rather than by volume resulting in a more accurate measure even with changing temperature conditions. The system is entirely automatic and requires only one operator who also operates the weight hopper and mixing unit.



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of fertilizer would thus be shown on the chart as a bushel of corn. Sixteen dollars and fifty cents worth of fertilizer would be shown as 10 bushels of corn, and so on.

Another way to explain this chart is to say that the upper solid line represents additional return from the use of fertilizer and the lower line represents how much this extra return would cost the farmer. Disregarding any additional harvesting and irrigation costs, the distance between these two lines represents extra profit. Point "P" is the point at which this distance (and the profit) is the greatest.

This graph, which would be typical of the fertilizer response of many, if not most, crops on most soils, illustrates two interesting points, i.e.:

1. Applying too much fertilizer has about the same effect on profits as applying too little. In fact, in this example, the application of too little, say 50 pounds of N less than the most profitable rate, would cut profits more than would the application of 50 pounds extra N. In other words, cutting down on the fertilizer application is not "playing it safe." The way to "play it safe" is to apply as nearly as possible the amount experimental data shows to be the most profitable.

2. Moderate variations from the most profitable rate of fertilizer application have very little effect on profits. In this case 20 pounds of N too much or too little would not appreciably affect profits. In other words, a recommending authority need not hesitate to make a recommendation for the most profitable rate because of doubts as to the precise rate which will bring the greatest profit. On the other hand, at lower rates of fertilization, say at the rate of 60 pounds of N to the acre, an increase or decrease of 20 pounds of N would make an appreciable difference in profits.

One very important result of analyzing the economics of high yields would be to furnish guides to farmers as to what crops they should grow. Let me illustrate with two hypothetical cases. First is Crop A.

Under average fertilizer applications it will earn, at present prices, \$35.00 an acre. Crop B, under similar conditions, will earn \$25.00. With optimum fertilization rates, Crop A will earn \$50.00 while Crop B would shoot up to \$100.00 an acre. A farmer, aiming for low unit costs and high profits, probably should shift from Crop A into Crop B, provided there were no agronomic reasons why this should not be done.

This type of information, worked out at various price levels for fertilizer use and crop yields would aid in bringing about shifts into the most profitable systems of farming.

Now let's suppose that the farmer has limited funds for working capital. He can't buy all the fertilizer he needs for the most profitable yields. What should he do? Put a small amount of fertilizer on all his crops? Probably not, because some crops give bigger dollar response than others. He should spend his limited funds on those crops which give the greatest dollar response to fertilizer applications. He needs economic signposts if he is to make this decision correctly.

Credit can be a very troublesome matter to farmers who want to borrow money to buy fertilizer. A sound economic analysis which a farmer can use in discussion with his banker or other credit institution can do much to influence the banker in going along with loans designed to step up yields. Bankers who are dealing with other people's money must assure themselves that loans are sound. For bankers to do this they need an analysis in dollars-and-cents terms. This is the language in which they deal and which they will understand.

Summary—The agriculture of the far West is very efficient. A major contributing cause to its efficiency is that in order to sell farm products in eastern markets it must produce goods of superior quality at lower unit cost of production.

2. The current market situation makes it appear likely that farmers will have to cut further their unit costs of production if they are to

continue to compete profitably in the market place. Generally they can do this by stepping up yields.

3. Fertilizer on field corn, for example, can mean the difference between 75¢ an acre profit and \$112.00 an acre profit. The average profit now appears to be around \$29.00 in the state of Washington. Per bushel costs of production of corn can vary from \$1.63 down to 77¢ depending on the fertilizer application and yield.

4. These principles apply to most crops on most soils.

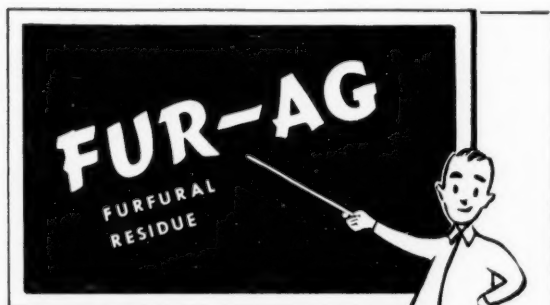
5. Washington State College already has presented data which show that farmers can make substantial profit by increasing their fertilizer applications.

6. Net profit should be the true guide to fertilizer rates. Farmers want to know how much fertilizer they should use to obtain the maximum return.

7. If a farmer applies fertilizer in the neighborhood of the most profitable rate, it doesn't make much difference if he over-fertilizes or under-fertilizes by a moderate amount. If he goes substantially below the point of most profitable rate he will, however, cut his profits greatly—by about the same degree as he would by over-fertilizing to the same extent. The best practice to recommend is the most profitable rate. It is not playing safe to cut the recommendation below the test-proven rate.

8. The economic analysis of various rates of fertilizer application can serve not only to increase the farmer's income on the crops he is currently growing, but also it can furnish a guide as to the crops he should grow to increase his net return; and for the farmer with limited capital, such analysis may tell him how to ration his capital or help him to borrow more.

9. Guidance in the economic use of fertilizers is urgently needed by many farmers. Fertilizer recommendations, based upon sound economics, can probably do more to improve farming efficiency quickly than any other factor.



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PHOSPHATE FERTILIZER AND AGRICULTURE A CLOSE PARTNERSHIP

The fertilizer industry of this country is now in the process of rapid and extensive change involving both the product and the make-up of its membership. New kinds of fertilizer are appearing, quite different in physical appearance and chemical composition; corporate businesses having backgrounds remote from fertilizer manufacture are entering the industry. Formerly the fertilizer industry expanded by doing the same things merely on a larger scale. Now, expansion is occurring through completely new kinds of operations based on chemical engineering and into consuming areas where until recently fertilizers were hardly known. Our industry is come of age. We are now one of the most important divisions of the vast American chemical industry which excites the envy of the rest of the world. Last year the American fertilizer industry did a business close to a billion dollars. By 1965, it is predicted, our industry will be doing close to two billion dollars annually. As might be expected, we are witness also to a new concept of fertilizer use; fertilizer is regarded no longer as a quick stimulant for bigger yields; we recognize now that our product is a bulwark of permanent soil building and an indispensable tool in reducing the crop unit cost of production on modern, mechanized farms.

Fertilizer Practices Then and Now

The fertilizer industry serves agriculture; and it is inevitable that developments in agriculture will



Dr. Vincent Sauchelli

strongly influence our industry. In the period prior to chemical fertilizer manufacture, guanos, farm manures, and by-products of the packing and other industries were generally used as plant foods—bulky organic substances like stable manure, fish meal, dried blood, composts and sewage sludge. Factory made fertilizers were dubbed “synthetic” or chemical salts, and even though derived from natural materials, were at first regarded by farmers with suspicion, prejudice and even contempt. This was understandable. Manures and guanos had been used for generations and were traditionally accepted. Fertilizers are strictly modern, and, surprisingly, even at this late day, many farmers have never used them. Bitter controversies were engendered at first in connection with their use which seem to us now as having been so futile and unnecessary. But 19th Century scientists were doughty warriors who loved a fight and many a battle royal was fought.

Eventually, the Rothamsted Experiment Station in England and similar agricultural research institutions in Germany, France, and the United States demonstrated the value of so-called artificial or chemical fertilizers in the profitable production of crops, and peaceful development followed. However, even today the argument started by Liebig three generations ago by declaring that chemical fertilizers can furnish plants all the nutrients they need, is kept alive by the “organics only” cultists. These sincere but misguided proponents of “organics only” have never produced any acceptable evidence to justify their anti-fertilizer position. It is extremely difficult to study experimentally the influence of plant nutrients or the nutritive value of a food and it is necessary to use the most carefully designed experiments to yield acceptable scientific results. This they have not done so far.

However, the pressure of increasing population in all civilized countries and the unquestionable utility of chemical fertilizers in producing abundance of foods and fibers as demonstrated by American agriculture during the last war have made many converts. All countries are in the process of expanding their domestic facilities for producing one or more fertilizer materials. Farmers everywhere are being taught how to use more lime and fertilizers efficiently by proper placement, better adapted ratios, and good soil management practices. The industrialization of the farm is demanding fertilizers of higher analysis and the improved drillability and storability qualities of granulated products.

Youth in the fertilizer industry

(1) Paper given at Regional Fertilizer Conference, Pullman, Washington, July 1, 1953.

(2) Director of Agricultural Research, The Davison Chemical Corporation, Baltimore, Maryland.

of today can hardly appreciate the degree to which improvements in quality have been made. The sulfate of ammonia of yesteryear was always moist and liable to lump or cuke, and its free acid rotted bags, corroded wooden or concrete floors and its tar acid impurities made it smelly. Superphosphate used to be produced as a moist material averaging only about 12 to 14 percent P_2O_5 . Prior to the use of mechanical dens a trip to the superphosphate plant was a most unpleasant experience—the fumes and dust were appalling. The potash salts have always been somewhat better in condition but the original low-grade manure salts often gave trouble when compounded with other chemicals.

Standardization of analytical methods and the sale of fertilizers on a guaranteed basis were major improvements in the marketing of our products. Sales practices of the early days of the industry were reputedly on a low level. Many unscrupulous little peddlers sold mixtures on an unethical basis and this gave the whole industry a bad reputation.

Fertilizer people were generally regarded as rogues or crooks. That is why so many of the agricultural authorities of that period recommended that farmers buy their materials by analysis from reputable firms and mix their own fertilizers on the farm.

The enactment of fertilizer control laws by States had a wholesome effect on selling practices. Another significant factor in elevating the ethics and practices of the industry was undoubtedly the entrance into it of men of higher moral stature and capabilities. This occurred when many of the smaller units became merged into large progressive enterprises. These larger corporations could afford to employ able executives, chemists, chemical engineers and other trained technicians. From then on technological progress modified the character of the old-time scavenger industry. Since World War I the American chemical industry has advanced by big strides. We see how this in-

August, 1953



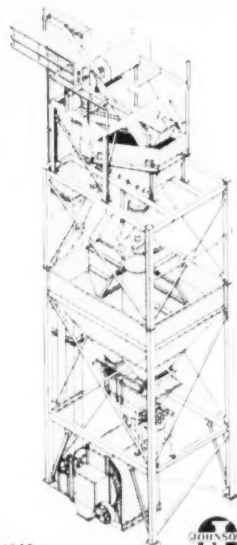
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fluenced our industry:—the remarkable development of the synthetic nitrogen industry, our domestic potash industry, technological changes in the ancient superphosphate industry, physical improvements in such materials as sulfate of ammonia and imported nitrate of soda, the utilization of ammonia liquors of high nitrogen content which displaced low-analysis, uneconomical organic materials in mixed goods. When one considers the inertia which had to be overcome in the old tradition-ridden fertilizer and agricultural industries to get these innovations accepted, the progress since 1915 is truly marvellous.

Phosphorus and Phosphates

Since phosphorus is the major part of my subject, a brief review of some of the highlights of its history is pertinent. Discovered accidentally in the 17th century by the alchemist Brandt in Germany, phosphorus was destined to become one of the most remarkable discoveries of all time. This chance discovery was transformed by slow, steady progress by the alchemy of vision, enterprise and sweat, into one of the primary materials for the advancement of agriculture, the improvement of private and public health and the enjoyment of human life. It is impossible to conceive of modern civilization in the absence of phosphorus. That's how vital it is.

Early History

We owe gratitude to the pioneers who founded our industry and who patiently toiled to advance its interests—von Liebig in Germany, Gilbert and Lawes in England, Boussingault in France, William Davison, Gustavus Ober, John Kettlewell in Baltimore, Maryland—scientists and industrialists—and the thousands of unsung, unremembered persons who made their small but worthy contributions. In the United States, commercial developments began with the discovery of phosphate rock deposits in South Carolina in 1867 and subsequent discovery and exploitation of the rich deposits of Florida and Tennessee. World agriculture as well as

domestic responded quickly to the availability of this essential plant nutrient. By 1900 about 80 companies were mining phosphate rock in Florida alone. In the last year of record—1951—world production of phosphate rock amounted to 23.7 million tons with about 8 million tons of P_2O_5 and world production of superphosphate reached the grand total of 27.4 million tons (about 5 million tons P_2O_5) of which the United States alone produced 30 percent or close to 1.5 million tons P_2O_5 .

The growth of the fertilizer industry has been relatively slow during its first 100 years. The pattern which developed in the early stages persisted until recently with but little change. Several of the larger fertilizer companies mined and beneficiated raw rock phosphate in Florida and Tennessee. These subsidiaries or mining divisions of the big companies furnished prepared ground rock to their parent companies and offered some for sale on the open market. Fertilizer companies, with one or two exceptions, manufactured superphosphate as the only fertilizer ingredient. Most of the large companies produced in coexistent plants all the sulfuric acid they needed, but the majority of the processors bought both rock and acid in the open market, while the dry mixers bought superphosphate from larger producers. Most fertilizer companies bought their requirements of the other major plantfoods—nitrogen and potash—from prime producers and dry-mixed them with the superphosphate to produce complete mixed fertilizers. That, in general, was for years the broad pattern and organization of the fertilizer industry.

Technological Culture

In today's technological civilization it seems to be the rule that search never ends for new and physical inventions. It is necessary to do this if one is to survive. The basic rule of this present-day culture is to use energy more efficiently. Mechanization becomes the order of the day. Ours is the machine and

chemical age. You know how one major material invention can produce multiple effects. A good example is the invention of the internal combustion engine and its use in the automobile—a constellation of inventions and integrated developments throughout our social life is associated with that one invention. Similarly a cluster of associated inventions and developments in agriculture and the processing industries stemmed from developments in the rock mining industry.

Phosphate Rock Mining

Muscle—human and animal—was the power used in rock mining in the primitive years in Florida and South Carolina — back-breaking work with pick and shovel, wheelbarrow and mule. That same kind of power prevailed in the fertilizer plants, too. What a contrast today: giant draglines, equipped with booms 170 feet long and buckets of 16 cubic yards capacity which can remove 10 tons of overburden every 45 seconds of operating time—1500 tons an hour! And only 3 men required on a dragline per shift: To do the same work by the old muscle and steam shovel methods required 40 men.

Beneficiation of the rock by flotation is another improvement in the achievement of low-cost operation. By its means the miner can recover phosphate rock fines of less than 20-mesh size—fines which comprise about 20 percent of the total phosphate of lower grade rock of the pebble field of Florida (66 to 68% B.P.L.) and up to about 85 percent of the higher grades. Thus millions of tons of phosphate formerly discarded are now recoverable, and that represents real conservation of a priceless national resource.

Superphosphate Manufacture

What is true of the mining is true also of the processing phase of the industry. Technological progress in Europe and America has raised the general efficiency of plant operations, increased the total available P_2O_5 content and improved the physical quality of normal superphosphate. This product has been the basis of the world commercial



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tempting to evaluate their experience, we have summarized their replies in a convenient, easy-to-read form.

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fertilizer industry for more than a hundred years and is still the premier source of phosphoric acid for plant feeding purposes.

The process originated in England when John Lawes commercialized Liebig's suggestion that treating a mineral phosphate with acid converted it into a more rapidly available phosphate for plant growth. Lawes called the product Super-Phosphate and that designation has been used ever since.

This "wet" method of producing superphosphate has held first rank for over a century because of its simplicity and low-cost operation. Alternative methods are now receiving serious consideration in our country owing to the threatened shortages of cheap sources of brimstone sulfur. The industry can take justifiable pride in its record of having improved manufacturing methods which gradually increased the available P_2O_5 content from 12 percent to the present average of between 18 and 21 percent available P_2O_5 . These are evidence of the improvements in the industry brought about by mechanization and chemical engineering. Technological advances gave us granulation as a dependable means of improving physical quality and storability. The present capacity of the more than 204 plants in the United States for production of normal grades of super is close to 16 million tons (or about 3 million tons available P_2O_5) and of the 9 plants for concentrated grades, 45% to 48% P_2O_5 , the national capacity is about 800,000 tons (approximately 360,000 tons P_2O_5).

The demand for concentrated superphosphates is rapidly expanding, particularly in the Middle West and Pacific Regions. Industry is aware of this as is evidenced by the new capacity which has been completed recently or is at present under construction in Florida and elsewhere.

The trend toward mechanization and chemical engineering in all industry is reflected in the design and operation of modern superphosphate and fertilizer plants throughout the world. Mechanical dens for batch and continuous operation are now the general rule. Man-labor

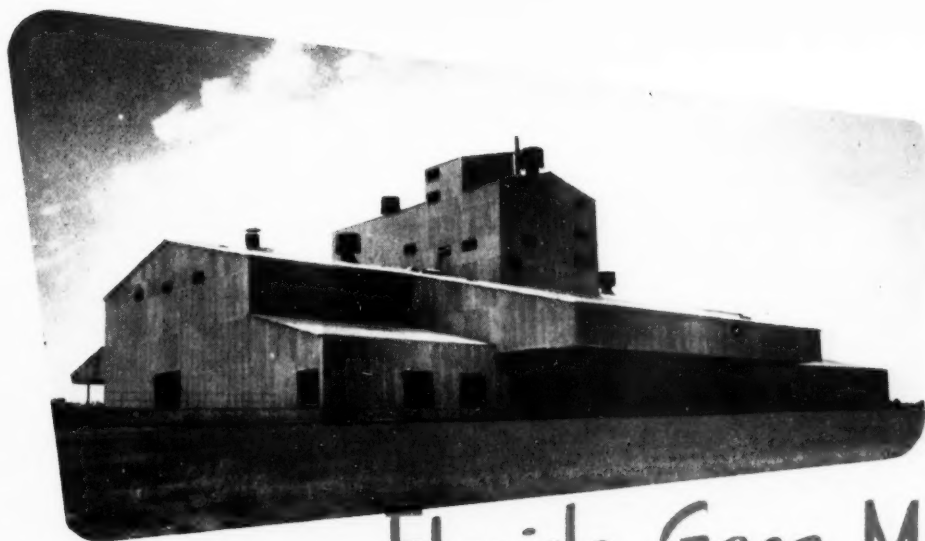
hours per ton of superphosphate have declined significantly while quality and quantity are maintained at high levels.

The threatened early depletion of the sulfur domes of the Gulf States, which alarmed many persons two years ago, had the effect of directing interest toward processes for calcining or fusing phosphates and processes that utilize nitric and phosphoric acids, alone or as mixtures. Europeans have for many years been acidulating phosphate rock with mixtures of nitric and sulfuric acids as a means of overcoming the high cost of imported sulfur. It is reasonable to expect that our domestic industry will in the near future utilize some of these alternative processes found suitable to our economy. Undoubtedly, we shall have in the not too distant future commercial fertilizer materials of high nutrient content which now are known only to laboratory workers, for example, such promising products as potassium metaphosphate and magnesium ammonium phosphate. It is conceivable that low-cost electrical power may make it possible to produce the element phosphorus here in the Northwest for shipment to eastern processing centers where it will be made into required phosphatic compounds for industry and agriculture.

The future appears so fascinating, but who dares to prophesy? Of one thing we can be sure: it will be different. Change is inevitable and we can face it with courage and hope.

Looking Forward

The fertilizer industry and agriculture constitute a close business partnership: no closer business partnership exists. The farmer's problems are the industry's problems. We depend upon farmers for our income. His purchasing power tells us the extent to which he may buy what our industry produces. To meet the demand of an expanding, scientific agriculture, industry has developed new and revamped old processes and techniques. Some of the novel developments are, for example: the direct application of an-



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hydrous ammonia to soil; bulk spreading of superphosphate first and now complete fertilizers; spray-feeding through foliage; application of fertilizers by airplane; direct applications of concentrated fertilizer solutions; use of pressure tanks for anhydrous ammonia application and non-corrosive tanks for ammonia solutions; and improved, moisture-proof bags.

Progress in the science of nutrition of plants and humans, the economic evaluation of balanced fertilizers based on agrobiologic sciences, new varieties of plants capable of utilizing much higher quantities of plantfood than previous types—these are some of the powerful factors favoring an increase in consumption of high-analysis, chemical fertilizers. These ferments in agriculture and the fertilizer industry are creating pressures within and without which demand action by our leaders if they want to safeguard or improve their position. Something new has now been added: the federal government through its Department of Agriculture agencies is prodding the industry to expand its facilities and urging co-operation of State agricultural agencies to meet the future requirements of our vigorously growing population. You are all familiar with the production goals set up by the United States Department of Agriculture for plant nutrient production by 1955: an over-all increase of 79%, or in round numbers, an increase of total nutrients to 7,855,000 tons. That certainly is asking us to raise our sights as never before. Our government is becoming our best salesman. Could any industry hope for more?

One may ask, in looking at this rosy picture of future prospects, "What can hold us back?" Well, ourselves, principally, by how far we are willing and able to progress in the production, merchandising and scientific research phases of our industry. We must realize that progress will be achieved by teamwork, by integrating our efforts with those of other agencies, both governmental and private. These efforts will be focused on convincing

the farmers of America that fertilizer is an indispensable tool in farm production for reducing the crop unit cost of production. Under the spur of necessity, we have already tasted some of the fruits of this teamwork. How else explain the remarkable increase in production and consumption of fertilizers during the past decade or so?—an increase from about 8 million tons in 1939 to 22 million tons in 1952. Chemistry, biology, engineering and managerial skills on the farm, in the laboratory, in the factory, and in the market made this record achievement possible.

In this last period of accomplishment we see how new, concentrated nitrogen solutions derived from synthetic ammonia, were blended successfully with highly purified, concentrated potash salts, higher analysis phosphates, difficult-to-handle solid ammoniates of 32 to 45 percent nitrogen content to produce acceptable concentrated mixed fertilizers. Much work had to be expended by production men in learning how to adapt these new materials to their purposes, and by the agronomist and plant breeder, to theirs. We have a great deal yet to learn. That's what makes our own cluster of industries so interesting—ever changing, ever challenging the best in us. The new and broader concept of the role of fertilizer in farm practices and in the national economy will keep on generating demand for our products—a demand influenced more by the needs of nutrition, sound farm practices and national security than as, in the past, by the size of the previous year's cash-farm income. The leadership and managerial skill of the fertilizer industry now face this challenge of a greater public concern for the future of our soils and of public health. Never in its long years of service to agriculture and the nation has our industry had a greater opportunity to serve the public interest and incidentally its own, than this of the next 25 years.

How meet this challenge? By raising our sights—and particularly by overhauling many of the tradi-

tional methods of merchandising our products. Farmers are now better informed, better trained, more receptive to new ideas than in the past. They want the help which our product can give them in meeting their production problems and in making their operations pay a profit. Sales policies and selling techniques need revamping, modernizing, to fit in with our broader concept of service: In this jet-powered era, where is sales efficiency? Sales methods are still in the Model T stage. We are in the situation which scientists, government agencies, and many of our own leaders are creating demand, and production engineers perfecting techniques and equipments in order to produce more at lower unit cost. But, to what purpose their tireless efforts unless distribution plays its essential coordinate role? Sales is the catalyzing agent that joins production and consumption to yield **Profit**—that indispensable ingredient so necessary to new growth under the competitive enterprise system. How can we make the farmer realize that the best investment he can make is that small profit-margin our industry requires in order to support needed research, improved distribution services and development of better fertilizers at lower cost per unit of plantfood? Selling our product at the cheapest per ton price will not benefit him in the long run.

We all have reason to be optimistic about the future. Certainly tomorrow's fertilizer processes and products will be superior to those of today. Research is a powerful agency of change in the modern world. Agriculture is not now making full use of the fertilizer tool already developed by research. Tradition and habit are formidable obstacles to scientific advances not only on the farm but in business also. But we must push forward. Old materials and plant locations need reappraisal in order to justify themselves under our changed economy. Transportation costs necessitate a study of present locations with reference to the consuming areas to be served and the size

and diversity of the markets to be reached economically. We have had 13 years of consecutive increases in the consumption of fertilizers—a sellers market. It may be that from now on we may be entering a new phase—a buyers market. But we know that without fertilizers in adequate amounts, modern farming practices cannot get the maximum acre yields and the highest output per man. Our product must be used increasingly if modern agriculture is to produce the food and fiber for

the growing populations of the world.

What industry has a greater potential business or opportunity for growth than ours? Business is literally being created for us by other agencies—population, growth, agronomic and soils science research, and promotion by federal and state government agencies. We need the vision and imagination and courage to grasp it. Let us stop worrying about and autopsying the dead yesterdays. We have today and tomorrow. Last year the country's agricul-

ture consumed 22 million tons of fertilizer and about 30 million tons of lime. By 1965 it is estimated our agriculture will be consuming about 40 million tons of fertilizers or about 10 million tons of actual plant food. Fantastic? Not at all. Back in the late 20's who would have prophesied that in 25 years American farmers would be consuming 22 millions tons of fertilizers? That would have been considered lunacy. Let us set our sights high. Then, let creative salesmanship hit that target.



Group photo taken at Clemson Meeting.

ASSN. SOUTHERN FEED & FERTILIZER CONTROL OFFICIALS

Over 200 persons, representing 15 states, attended the eleventh annual convention of the Association of Southern Feed and Fertilizer Control Officials held at Clemson, S. C., Monday and Tuesday, June 22 and 23. Parks A. Yeats, Oklahoma City, Okla., was elected president succeeding J. J. Taylor, Tallahassee, Fla. E. A. Epps, Baton Rouge, La., is vice-president, and Bruce Poundstone, Lexington, Ky., was re-elected secretary-treasurer. The three new members elected to the executive committee were Bruce D. Cloaninger of Clemson, S. C.; M. P. Etheredge of State College, Miss.; and N. L. Franklin of Richmond, Va.

Mr. Taylor, state chemist, Florida Department of Agriculture, opened a program of discussions and papers with his presidential address Monday afternoon.

"I think we, as regulatory officials should be constantly re-eval-



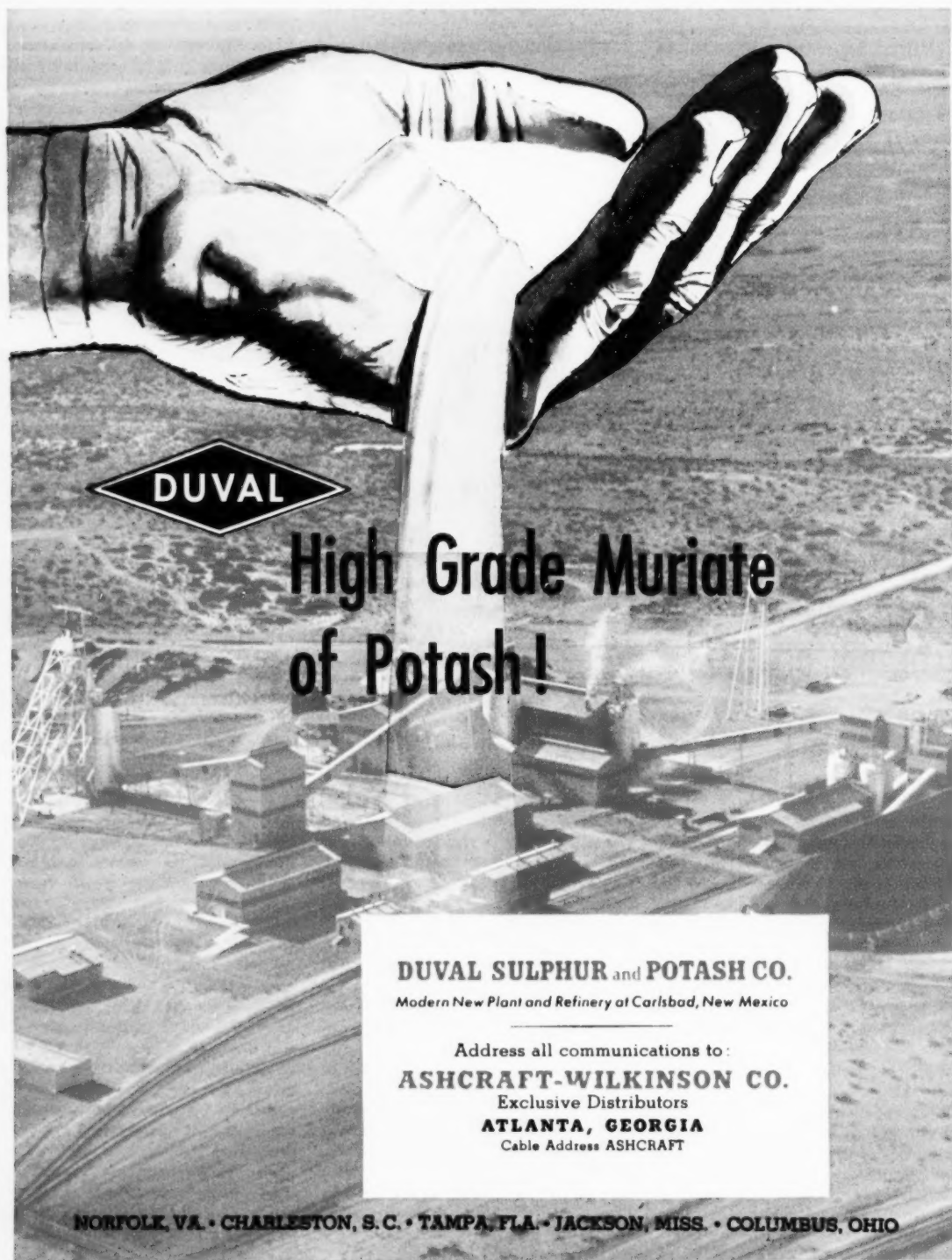
Rev. M. C. Allen, Pastor Clemson Baptist Church, Park A. Yeats, Oklahoma Dept. of Agriculture, Oklahoma City, Dr. J. J. Taylor, Florida, and Bruce Poundstone, Kentucky.

uating our regulatory program to see if we are keeping abreast of the new discoveries in the nutrition field and new practices in the manufacturing field. If we do not do so, we will find ourselves failing to perform the functions for which our departments were created," Mr. Taylor told his audience.

Dr. Webster Pendergrass, extension agronomist, University of Tennessee, discussing "Public Relations," said that everyone who works for a firm or department, from the top to the bottom, has the additional job of public relations. Speaking on the "New Uses of Insecticides in Fertilizer and Soil Toxicity Studies," Dr. M. D. Farrar, Clemson College's new Dean of Agriculture, presented the uses, the

problems, the dangers, and the advantages and disadvantages of such insecticides as aldrin, heptachlor, DDT, and chlordane. N. R. Page, associate agronomist, South Carolina Experiment Station, Clemson, discussed "Minor Elements, Availability and Residual Effects," and suggested that "our ultimate goal is to be able to add the trace elements as a form of insurance, to all mixed fertilizers in a form such that they will not harm the more sensitive crops and yet provide a slow and continuous supply great enough to meet the requirements of most plants."

At the association's annual banquet Monday evening, J. A. Rogers, director of public relations for Coker's Pedigreed Seed Co., Hartsville,



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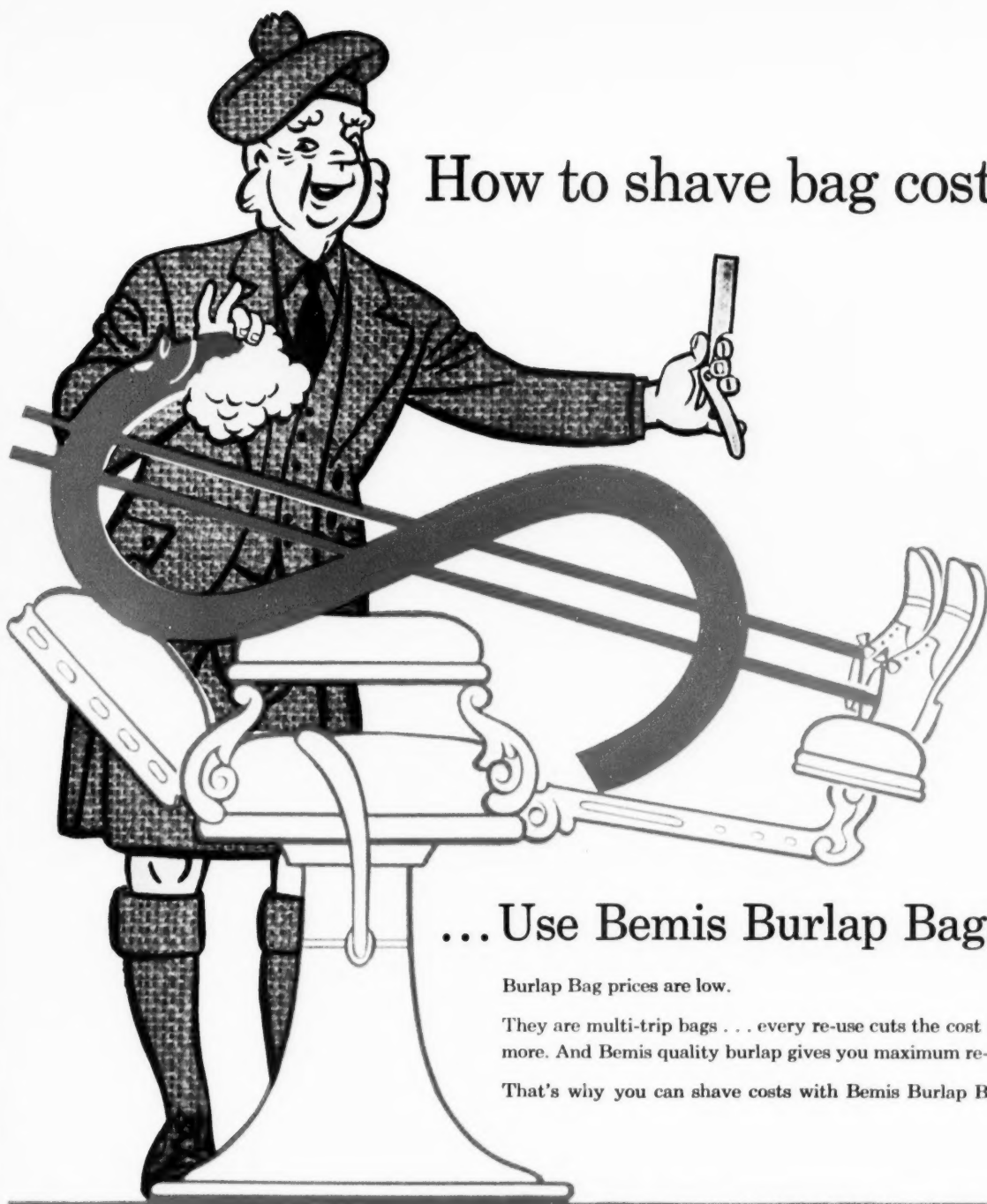
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S. C., said that, "The time has not come, nor will it come in your lifetime or mine, when the economic well-being of the South will not be closely associated with the welfare of agriculture."

Thomas C. Law, of Law and Company, Atlanta, Ga., opened Tuesday morning's session with a paper on "Chemical Control in Industry." Following Mr. Law was G. W. Brandt, associate dairy husbandryman, S. C. Experiment Station, Clemson. Discussing "The Relation of Nutrition to Fertility in Dairy Cattle."

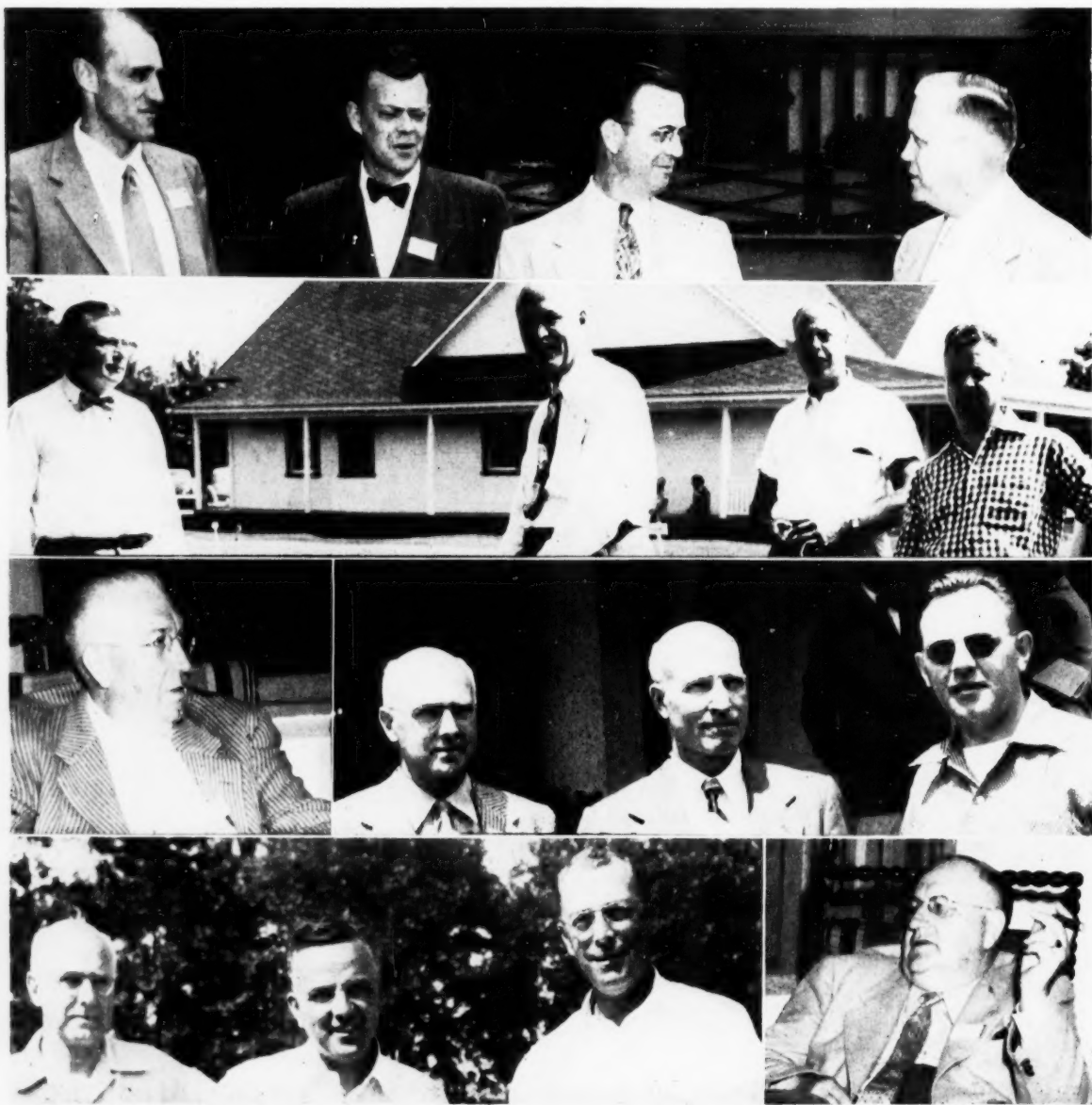
Before lunch, the delegates heard a panel discussion on the question, "What Population Can Be Fed Adequately by American Farms?" In summarizing the discussion, Dr. E. J. Lease, nutritionist, S. C. Experiment Station, Clemson, said that "we seem to be well-agreed that American farms can produce about three times more than they are now producing."

Dr. G. H. Aull, head of the department of agricultural economics and rural sociology, S. C. Experiment Station, Clemson, said that better management of our present

facilities is needed to insure greater production of food.

Dr. H. P. Cooper, of the S. C. Experiment Station, said that when we consider the short length of time agricultural research has been underway and the tremendous amount of progress which has already been made, it is hard to even estimate just what America's production could be.

The convention closed Tuesday evening, June 23, following a buffet supper.



200 ATTEND CANADIAN PLANT FOOD PRODUCERS CONVENTION JULY 6

Close to 200 delegates and their wives gathered at the Algonquin Hotel, St. Andrews-by-the-Sea, N. B., July 6, to attend the largest convention ever held by the plant food producers of Canada.

KEY TO PICTURES

1. Among the delegates attending the ninth annual convention of the Plant Food Producers of Canada at the Algonquin Hotel, St. Andrews, N. B., are: J. B. Gnaedinger, Wakefield, Que., William A. Semple, J. M. Montgomery, both of Montreal, and S. B. McCoy, Chicago. 2. Between sessions at the meeting, many of the delegates took part in an obstacle golf tournament. Four of the contestants are: E. W. Harvey, New York, T. P. Kidd, Toronto, R. C. Eakin, Montreal, and T. C. Rogers, New York. 3. C. W. Jarvis, Toronto, secretary of the association. 4. Dr. F. G. Keenan, Wilmington, Del., G. W. Michael, Ottawa, representing the dominion government, and D. T. Fangmeyer, Baltimore, Md. 5. F. G. Keenan, Wilmington, Del., J. G. Carroll, Baltimore, and R. B. Lenhart, New York. 6. Earle M. Grose, Toronto.

Below: Between business sessions of the convention, many of the delegates took advantage of the hotel's own 18-hole golf course. 1. W. N. Watmough, Baltimore, J. B. Ford, New York, D. Dupre, Montreal, 2. John Foy, Atlanta, E. M. Grose, Toronto, G. H. Ashcraft, Atlanta, and Mr. & Mrs. Joe Stough, Chicago. 3. Wives of the delegates enjoyed a varied sports program which included a special convention tournament on the hotel's own golf course. Mrs. E. J. Wain, Montreal, Mrs. William Chadwick, Mrs. Dallas Culver, Seaford, Del., and Mrs. J. B. Ford, New York.

Delegates from centers in the Eastern United States and Canada were on hand to discuss pertinent agricultural problems common to farmers on both sides of the international border. At the official opening banquet in the main dining room of the hotel the evening of July 6th, the men and their wives were welcomed to New Brunswick by Hon. D. L. MacLaren, Lieutenant-Governor of the province. Following a general organization meeting Monday afternoon the delegates adjourned until Tuesday morning when the first business meeting of the convention started.

Dr. George R. Smith, director of Chemistry for the Nova Scotia Department of Agriculture and Marketing, was the first speaker Tuesday morning, his subject being soil fertility problems related to grassland management. He was followed by S. A. Hilton, superintendent of the experimental station, the New Brunswick Department of Agriculture. Mr. Hilton's talk concerned potato research in the Maritime Provinces. Tuesday afternoon was

devoted to recreation, also all day Wednesday.

At the morning meeting Thursday some facts of Maritime agriculture were discussed by W. R. Shaw, Deputy Minister of the Prince Edward Island Department of Agriculture. Dr. Russell Coleman, president of the National Fertilizer Association, Washington, D. C., led a discussion on Thursday morning's program followed by Paul T. Truitt of the American Plant Food Council, Inc., also of Washington, D. C.

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Reservations	C. W. JARVIS
Golf	J. T. DRISCOLL
Prizes	MRS. C. W. JARVIS
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Plant Food Institute Sees Experimental Plots

The Plant Food Institute, made up of fertilizer manufacturers in Virginia and North Carolina, recently met at VPI, to tour experimental plots at the college, and to hear luncheon addresses by Dean L. B. Dietrick, and Walter S. Newman, VPI president. Some 75 were present.

Louisiana Society Is Chartered, Organized

The Louisiana Plant Food Association, Inc., was chartered under the laws of that State June 25. In the course of a meeting of the Louisiana State Grade Conference June 30, an organization meeting was held at which the following officers were elected: W. F. Williamson, president; Arthur F. Gayle, 1st vice-president; J. B. Snell, 2nd v-p; M. T. Abington, secretary-treasurer.

Charter headquarters of the society are located in Baton Rouge. Membership consists of any individual engaged in or representing a firm engaged in the manufacture and/or distribution of fertilizer in Louisiana with associate membership to any State or Federal agricultural worker, working in Louisiana. The charter is a normal one for associations of this nature.

Texas Organizes During Grades Conferences

While the Southwest Grades Conference was underway in Galveston, July 9-10, and since most of the members of the plant food group in that area were assembled at the time, they took the opportunity to set up their long-planned organization, electing officers and ten directors—two from each of four districts, and two from bordering states.

Bill Burns, International Minerals & Chemical, Texarkana, is presi-

dent. B. L. Henderson, Campbell Fertilizer Co., Houston, is secretary-treasurer.

At the meeting, the by-laws were presented by a steering committee, consisting of Mr. Henderson, J. D. Dawson and Tom Wright, and accepted in general. Mr. Wright, in behalf of the nominating committee submitted a list from which the following were elected as directors: South Texas: Mr. Henderson and Mr. Dawson; East Texas, Mr. Wright and John T. Carlisle of Jacksonville; North Texas, Dean H. Smith, Bonham and D. H. McKinney, Sulphur Springs; West Texas, R. D. Evans, Etter and Floyd W. Prather, Comanche; Bordering States, Bill Burns, Arkansas and Stanley Hackett, Louisiana.

The by-laws differ from some in that active members must be connected with firms registered with the State Chemist. Affiliate commercial membership includes bankers, implement manufacturers, even newspapers, radio and TV stations. Affiliated educational members include any of the extension group—county, State or Federal. Associate members are any farmers interested in better plant foods, and operating in Texas.

438 Attend Four Georgia Society Meetings

The four sectional meetings held during July by the Georgia Plant Food Educational Society jointly with the University of Georgia attracted total attendance of 438, fairly even in division. Of those who

registered, 10 per cent were salesmen, 13 per cent were manufacturers or company officials, 12 per cent were materials and lime suppliers, 22 per cent were fertilizer dealers or agents, making a total of 57 per cent from the fertilizer industry. Representatives of the Agriculture College, Extension Service (excepting county agents) and Experiment Stations constituted 11 per cent of those who registered. County agents were nine per cent and farmers who registered were 17 per cent of the total. Some farmers who resided in the local communities visited did not register. Miscellaneous groups consisted of Vocational Teachers, newspaper reporters, bankers, representatives of FHA, SCS, PMA, with a few other visitors represented six per cent. In the North Georgia meetings, 29 different companies concerned with fertilizer manufacture or supply of materials were represented. At the South Georgia meetings, 28 such companies had representatives present. Represented were the major companies supplying materials (including lime) in the state: Armour Fertilizer Works, Fertilizer Industries, (Southern Fertilizer & Chemical Co.), International Mineral & Chemical Corp., Swift and Company, Tennessee Corporation, and Virginia-Carolina Chemical Corporation were well represented at one or all meetings. Excellent support was also had from many of the independent manufacturers.

The morning in each of the communities was spent in visiting

Groups are Active

farms and rural homes. It was pleasing to observe the diversified excellent farming being done. The farmers attributed a large portion of their success to the use of fertilizer and lime. The home makers said that the increased farm production made possible the improvements noted in the homes.

After lunch in one of the churches or school buildings a program was presented. The vice president of each of the districts presided at his respective meeting.

Tommy Walton, Assistant Extension Economist, Farm Management gave an excellent illustrated explanation of the functions of the community clubs in the state of Georgia. He pointed out that in the North Georgia Community Club Contest, reports from the organized communities showed that last year 78 per cent more fertilizer was used on farms in those communities than was used the previous year.

The local president of the community club, or his representative, at each of the meetings told how the use of plant food was contributing to greater prosperity in his community.

Some one representing the ladies in each community told how farm living had improved. In the Yeomans community, Mrs. Hautman was emphatic in her assertion that the "use of fertilizer has raised the farmer's standard of living."

Ralph Johnson, Extension Agronomist presented slides showing how to produce corn and pastures. He also had charts, and distributed mimeographed material based on a survey made through the County Agriculture Agents in Georgia showing the amounts of fertilizer used on the various crops. This was broken down by crops into pounds of fertilizers per acre and analysis for 1951-1952, with another column showing the total amounts in tons of fertilizer and top dressing by crops.

Oklahoma Association Organized July 15

The Oklahoma Plant Food Assn. was organized July 15 at a luncheon meeting in Hotel Tulsa to assist in making available information on plant fertilizers.

C. C. Crawford, Bartlesville, was elected president and L. L. Jaquier, also of Bartlesville, secretary. James Gillie, Joplin, Mo., was named vice-president and Arnold Newman, Oklahoma City, treasurer.

Directors, in addition to the officers, include George Summers, Stillwater; Dave Van Aken and Merle Blue, both of Kansas City, Mo., and Ernest Shiner, Oklahoma City.

The group, which expects to meet quarterly, elected the Oklahoma A&M college extension service, the Oklahoma office of the Production Marketing administration, the experiment station at Stillwater and the state board of agriculture honorary members.

Mr. Shiner said the organization's first project will be to set up a speakers' bureau to provide speakers on plant foods for various farm and garden group meetings.

S. C. Fertilizer Meeting Held July 16

The role of the fertilizer man in the welfare of the farmer was emphasized as more than 300 representatives of the industry from all parts of South Carolina held their annual state meeting at Florence, July 16.

Dr. R. F. Poole, president, Clemson College, had invited fertilizer manufacturers, dealers and salesmen, doing business in South Carolina to attend.

B. D. Cloaninger, head, Clemson Fertilizer inspection and analysis department, was in charge of the day's program.

Dr. Russell Coleman of Washington, president of the National Fer-

tilizer Association, bore this point out in an afternoon lecture, declaring:

"In the present era, the farmer can prosper only if he can intensify his production on the acreage allotted to him."

And it is mainly through proper and adequate fertilization, Dr. Coleman added, that this can be accomplished.

Dr. Coleman was one of a dozen speakers who discussed various aspects of the fertilizer industry during the afternoon.

During the morning, the delegates took a tour by truck across the huge Pee Dee Experiment Station, where they observed breeding demonstrations and variety tests, fertilizer experiments and plant food deficiency symptoms.

Dr. H. B. Cooper, director of the South Carolina Experiment Station, another afternoon speaker, pointed up the importance of the fertilizer industry. He said "without fertilizer, South Carolina and most of the East would have been an abandoned country."

He said the industry had put back everything taken out of the soil "and then some."

D. W. Watkins, head of the South Carolina Extension Service, spoke of the fertilizer industry's role in bringing about world peace which, he asserted, depends on food and adequate food production depends on fertilizer.

"If some way can be found to transport and utilize fertilizer in countries who do not produce enough food for their own people," he said, "the cause of world peace will be strengthened."

Others speakers during the day were Dr. R. F. Poole, Clemson College president; Dr. R. A. Mays, state veterinarian; J. T. Lazar, district extension agent of Florence, and other agricultural experts from Clemson, the Extension Service and the State Experiment Station.

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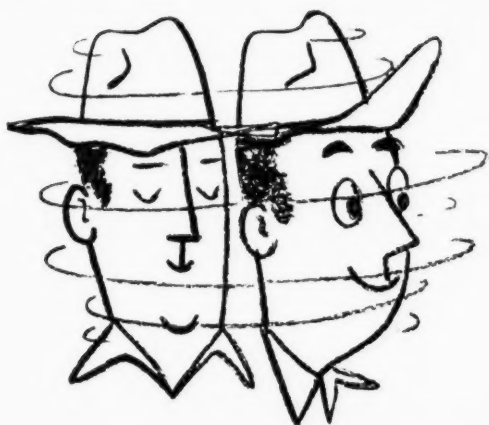
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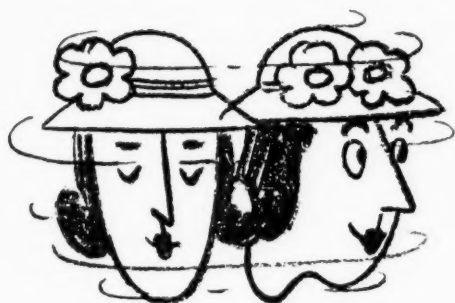
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MARKETS

FERTILIZER TAX TAG SALES AND REPORTED SHIPMENTS (In Thousands of Equivalent Short Tons) Compiled by THE NATIONAL FERTILIZER ASSOCIATION

As indicated by reports from eight States, June, 1953, fertilizer tax tag sales and reports of shipments in equivalent short tons of fertilizer fell below the level of June 1952, just as they did for the corresponding months of January and May. After forging ahead in February, March and April, fertilizer sales as mirrored by sales of tax tags and reports of shipments have succumbed to the midsummer doldrums.

Tax tag sales and reported shipments for the 11 months ending May 31, 1953 are equivalent to 10,229,000 tons of fertilizer. This is an increase of 215,000 tons over the 10,014,000 tons reported during the like period of the fertilizer year 1951-52.

ORGANICS: Recent sale of Blue Lupine Seed for export by Commodity Credit Corporation has reduced the available quantity of Blue Lupine Meal to a few thousand tons which continues to be offered at \$21.00 per ton bagged or \$19.00 per ton bulk, f.o.b. Georgia, South Carolina and Alabama crushing points. Good tonnages of Domestic Nitrogenous Tankage have been sold resulting in a firmer tone to the market. One producer has increased his price in the last few days. Current prices range from \$3.15 to \$4.50 per unit of Ammonia bulk, f.o.b. production point. Imported Nitrogenous Tankage offerings are light at around \$5.00 to \$5.35 per unit of Ammonia, bagged, CIF Atlantic ports.

CASTOR POMANCE: Recent sales have been made on Domestic production at \$30.00 for carlots and \$28.50 for quantities of 100 tons or more in bags, paper or burlap, seller's option, f.o.b. Northeastern production points. Imported material, depending on quality, is indicated at around \$34.00 to \$36.00 in bags, CIF Atlantic ports.

DRIED BLOOD: Unground Dried Blood in the Chicago area is indicated around \$4.75 to \$5.00 per unit

of Ammonia, bulk. The New York market is approximately \$5.00 to \$5.25. Ground Blood in bulk or in bags is somewhat higher.

POTASH: Renewals of domestic contracts for the new season are a bit slower than usual up to the second week of July. However, demand for the new season is expected to be strong and producers are confident production will be taken up. No changes in domestic prices have been noted. Imported Sulphate and Muriate of Potash is offered at prices a few cents under domestic material at Atlantic ports.

GROUND COTTON BUR ASH: This source of Potash, primarily in the form of Carbonate of Potash, continues available for prompt and future shipment at prices approximating the cost of Domestic Sulphate of Potash delivered destinations.

PHOSPHATE ROCK: Movement is steady against contracts with a greater proportion than previously used in making Triple Superphosphate. High-grade rock continues shorter in supply than low grade rock. Prices have advanced slightly in the last month or so.

SUPERPHOSPHATE: Supply position of Normal Superphosphate continues rather comfortable and producers are asking higher prices on account of increased cost of Sulphur. Triple Superphosphate demand exceeds supply in spite of advances in prices.

AMMONIUM NITRATE: This market continues somewhat tight

with demand in excess of supply. Prices are firm.

SULPHATE OF AMMONIA: Demand is rather seasonal and supply in good balance. Prices continue relatively firm at previously announced levels.

NITRATE OF SODA: Demand is in seasonal dimensions and stocks of imported materials are adequate. The supply of Reclaimed Chilean Nitrate of Soda resulting from a fire at Wilmington in March, is now practically off the market.

CALCIUM AMMONIUM NITRATE: Limited supplies continue available at a few Atlantic and Gulf ports. Prices remain \$51.25 per ton, in bags, f.o.b. cars at the ports.

GENERAL: Manufacturers continue to make contracts for raw materials to be used during the coming season and no unusual activity is noted at this time.

Northwest Group Meeting In Canada

The Pacific Northwest Plant Food Association has set the time and place for its 1953 convention. The group will assemble November 4-5 at Harrison Hot Springs, British Columbia, an outstanding Canadian resort. General Chairman Lyman Judson; Henning Waltersdorff, Program Chairman; Bob Fulton, Entertainment Chairman — these have already met, invited some speakers and are busy making arrangements.

STATE	June 1953	1952	May 1953	1952	Jan.-May 1953	1952	Jan.-Feb.-Mar. 1953	1952	July-May 52-53	51-52
Virginia	—	—	—	—	—	—	319	322	—	—
N. Carolina	—	—	181	174	1,514	1,521	877	893	1,802	1,838
S. Carolina	13	17	30	35	759	726	581	543	987	985
Georgia	77	98	223	299	1,053	1,003	445	407	1,344	1,256
Florida	60	67	100	105	668	599	484	417	1,290	1,150
Alabama	—	—	62	63	857	834	557	516	1,096	1,062
Tennessee	65	74	127	138	372	376	130	140	512	584
Arkansas	—	—	28	86	201	260	98	99	272	324
Louisiana	15	17	18	31	203	224	117	140	298	292
Texas	38	29	46	47	336	349	212	239	539	571
Oklahoma	—	—	11	15	70	104	47	62	142	230
TOTAL SOUTH	268	302	826	993	6,033	5,996	3,867	3,778	8,282	8,292
Indiana	14	62	29	61	565	493	433	351	1,099	976
Missouri	26	18	55	67	452	456	296	272	848	746
TOTAL MIDWEST	40	80	84	128	1,017	949	729	623	1,947	1,722
California	—	—	—	—	—	—	236	204	—	—
TOTAL OTHER	—	—	—	—	—	—	236	204	—	—
GRAND TOTAL	308	382	910	1,121	7,050	6,945	4,832	4,605	10,229	10,014

*Not available at this time.



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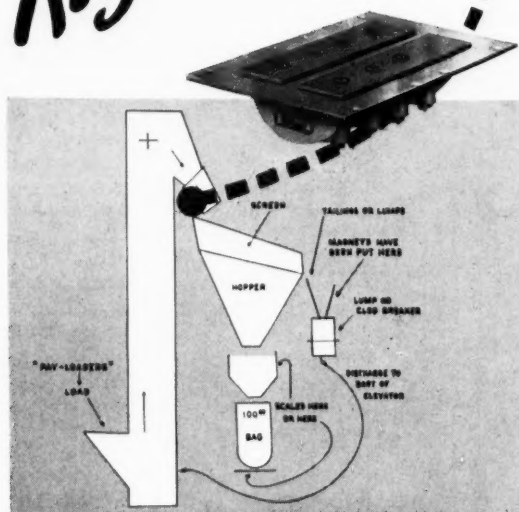
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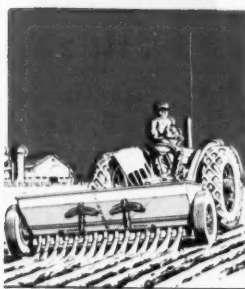
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Dings Magnets

August, 1953

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Minerals are just as essential to healthy plant growth and optimum production of vitamin-rich crops as are nitrogen, potash and phosphate. Mineralized fertilizer stimulates sales and creates new business because the results are conclusive. Fertilizers that give superior results are the fertilizers that the growers buy.

As basic producers of minerals, we would like to discuss mineralized fertilizer with you and show you how to increase your fertilizer tonnage and profits by the addition of minerals.

We can supply mineral mixtures to your own specifications in large or small quantities.

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SOLUBLE TRACE MINERALS

Tennessee's trace minerals are soluble and their nutritional value is immediately available to the plant. Soluble trace minerals are more economical and faster acting.

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DEFOLIANTS, MANUFACTURERS, APPLICATION RATES

Chemical name	Trade name	% active ingredient (\$)	Manufacturer† (or distributor)	ACRE RATES FOR EACH AREA (See Area descriptions Pages 6 and 7)					Dilution Data
				South Atlantic	South Central	Southw'ern River Valleys	Western Plains	Far West	
				DUSTS					
Calcium cyanamide	AERO Cyanamid Special Grade	57%	American Cyanamid Co.	25-35 lbs.	25-40 lbs.	30-40 lbs.	30-40 lbs.	30-40 lbs.	None.
Monosodium cyanamide	AERO Sodium Cyanamid Dust	27%	American Cyanamid Co.	*	*	30-40 lbs.	30-40 lbs.	30-45 lbs.	None.
Endothal	Niagarathal D-F Spray	6.3%	Niagara Chemical Div., Food Machinery & Chemical Corp.	*	*	3-5 qts.	4-5 qts.	4-8 qts.	7-10 gals. water per acre by air, 25-40 gals. by ground applicator.
	Pennsalt Endothal Defoliant S-4069	6.3%	Pennsylvania Salt Manufacturing Co.	*	2-4 qts.	3-5 qts.	4-5 qts.	4-8 qts.	Same as above.
	De-Fol-Ate	58%	Pennsylvania Salt Manufacturing Co.	7-10 lbs.	7-10 lbs.	7-10 lbs.	7-10 lbs.	7-10 lbs.	7-10 gals. water per acre by air, 20-40 gals. by ground.
Magnesium chlorate (hexahydrate)	AERO Cyanamid, Soluble	85%	American Cyanamid Co.	5-7 lbs.	5-8 lbs.	5-8 lbs.	5-10 lbs.	6-12 lbs.	7-10 gals. water per acre by air, 25-40 gals. by ground.
Monosodium cyanamide	Golden Harvest	40%	Chapman Chemical Co.	3-5 gals.	3-5 gals.	3-5 gals.	3-5 gals.	3-5 gals.	Dilute 1 to 5 with No. 2 diesel oil. (Rates are for diluted solution.)
Pentachlorophenol	Permaquard Defoliant Concentrate	44%	Thompson-Hayward Chemical Co.	3-5 gals.	3-5 gals.	3-5 gals.	3-5 gals.	3-5 gals.	Dilute 1 to 10 with diesel oil. (Rates are for diluted solution.)
	Permaquard Defoliant WF-40	42%	Thompson-Hayward Chemical Co.	3-5 gals.	3-5 gals.	3-5 gals.	3-5 gals.	3-5 gals.	Dilute 1 to 10 with diesel oil or water.
Potassium cyanate	AERO Cyanate Weed Killer	92%	American Cyanamid Co.	5-7 lbs.	5-8 lbs.	5-8 lbs.	5-10 lbs.	6-12 lbs.	Use 1 gal. water per lb. by air, 2 gals. or more per lb. by ground.
	Orchard Brand Potassium Cyanate Cotton Defoliant	92%	General Chemical Div., Allied Chemical & Dye Corp.	5-7 lbs.	5-8 lbs.	5-8 lbs.	5-10 lbs.	6-12 lbs.	Same as above.
Sodium ethyl Xanthate	S.E.X.	85% - 100%	Stauffer Chemical Co.	6-8 lbs.	6-8 lbs.	5-7 lbs.	6-8 lbs.	6-10 lbs.	Use enough water to wet plants, or following instructions on label.
Sodium chlorate-Sodium pentaborate	Shed-A-Leaf	40% - 52%	Chipman Chemical Co.	7-10 lbs.	7-10 lbs.	7-10 lbs.	7-10 lbs.	7-10 lbs.	Use 7-10 gals. water per acre by air, 25-40 gals. by ground.
	P.C.B. Defoliant	37% - 60%	Pacific Coast Borax Co.	7-10 lbs.	7-12 lbs.	7-12 lbs.	7-10 lbs.	7-10 lbs.	Same as above.
	Turnbleaf	40% - 60%	American Potash & Chemical Corp.	6-10 lbs.	6-10 lbs.	6-10 lbs.	6-10 lbs.	6-10 lbs.	Same as above.
Sodium chlorate-sodium pentaborate-sodium tetraborate	Orchard Brand Chlorate Defoliant	40% - 60%	General Chemical Div., Allied Chemical & Dye Corp.	5-7 lbs.	5-7 lbs.	6-8 lbs.	8-10 lbs.	7-9 lbs.	Same as above.
	Ortho C-1 Defoliant	40% - 45% - 11%	California Spray-Chemical Corp.	5-10 lbs.	5-10 lbs.	5-10 lbs.	5-10 lbs.	5-10 lbs.	Same as above.
Sodium chloroacetate	Dow Defoliant	85%	Dow Chemical Co.	*	*	5-7 lbs.	5-7 lbs.	5-8 lbs.	For each acre use 7-10 gals. water by air, 25-40 gals. by ground.

Not available in these areas.
For manufacturers' addresses see Page 9.

Courtesy National Cotton Council

PESTICIDES

NAC MEETS SEPTEMBER 9-11

The 20th Anniversary Meeting of the National Agricultural Chemicals Association is to be held at Spring Lake, N. J., Sept. 9, 10, 11, with headquarters at the Essex and Sussex, and additional facilities at the Monmouth Hotel, according to Lea S. Hitchner, executive secretary of the Association.

Election of officers and three members of the 15-member board of directors will be held during this meeting. Board members who have completed their terms are: W. C. Bennett, president of the Phelps Dodge Refining Corporation of New York City; J. Hallam Boyd, executive vice president, Commercial Chemical Company, Memphis, Tennessee; and Ernest Hart, executive vice president of the Food Machinery and Chemical Corporation, New York City.

Throughout the meeting special observance of the 20th Anniversary of the Association will take place. The first day's agenda will be presided over by NAC vice president Paul Mayfield, general manager of the Naval Stores Department, Hercules Powder Company, Wilmington, Del. The presidential address will be delivered by Arthur W. Mohr, president of California Spray-Chemical Corporation, followed by a report of the executive secretary.

J. Earl Coke, assistant secretary of the U. S. Department of Agriculture, will address the group during the first session, supplying the first opportunity for the Association to hear an address by an official of the new administration. Brigadier General Joseph F. Battley, president of the National Paint, Varnish and Lacquer Association will discuss some of the services that a trade association can bring to its members and to the public.

W. Raoul Allstetter, vice presi-

Larrick To Speak At NAC Meeting

An important additional feature of the 20th Anniversary Meeting of the National Agricultural Chemicals Association, at Spring Lake, New Jersey, not previously reported, will be a talk by George P. Larrick, deputy commissioner, Food and Drug Administration, on Friday, September 11, 1953.

Mr. Larrick will discuss the problems and relationships of the Food and Drug Administration to the Industry and the public.

In view of the fact that the establishment of tolerances and new legislation is now pending his talk will be of major interest, not only to the Industry, but to the farmers and to the consuming public.

dent, National Fertilizer Association, Washington, D. C., will point out some of the principals of merchandising chemicals for the American farmer.

A reception for members and guests will be held during the evening of the first day. Special entertainment and dancing are scheduled for each evening throughout the meeting. The annual golf tournament is scheduled for Thursday afternoon.

The entire Thursday morning session will be devoted to a discussion of fertilizer-pesticides mixtures with a panel of experts to guide the discussion. Dr. L. Gordon Utter of the Diamond Alkali Organic Chemicals Division, Inc., will be the presiding officer. The panel will be made up of: Dr. M. D. Farrar,

Head, Department of Entomology, Clemson Agricultural College, Clemson, S. C.; Dr. Rodney C. Berry, State Chemist, Virginia Department of Agriculture, Richmond, Va.; Dr. C. C. Compton, Julius Hyman Division, Shell Chemical Corporation, Denver, Colo.; and Eugene Ordas, Head, Product Development Division, Velsicol Corporation, Chicago, Ill.

One other panel member is to be selected. NAC members will have the opportunity to participate in this discussion after brief, formal presentations by the various members of the panel.

The annual banquet will be held at 7:30 Thursday evening.

The final session on Friday will be devoted largely to different phases of the marketing of pesticides and their uses. Richard O. White, chief of the registration section of the Insecticide Division, U. S. Department of Agriculture, will discuss some of the principal problems involved in the registration of pesticides. Some observations on the importance and place of fungicides in agricultural production will be made by Dr. George L. McNew, director of Boyce Thompson Institute, Yonkers, N. Y.

Following the address by these speakers, members of the Association will be given the opportunity to present questions and suggestions to the NAC staff and counsel on any problems relating to Association activities. The three-day meeting will close Friday afternoon.

Canadian Chemicals Association Formed

Fourteen producers of farm chemicals, who will invite others to join them, have formed the Canadian Agricultural Chemicals Association, with J. H. D. Ross, agricultural department, Canadian Industries, Ltd., Montreal, as president. The 14 represent a geographical spread across Canada, and their immediate objective is the encouragement of research aimed at improvement of production, distribution and consumption of farm chemicals.

Spring application of 10-10-10 increases wheat yield 8-13 bushels

for Ray Whetstone, Lima, Ohio

250 pounds of 10-10-10 fertilizer applied in the spring paid off well for Ray Whetstone of Lima, Ohio. It boosted his yield from a 25-30 bushel average in previous years to 38 bushels per acre in 1952. Fall fertilization was the same; the 10-10-10 made the difference.

Mr. Whetstone's 38 bushel figure was even more outstanding when you consider the average yield in Allen County in 1952 was 22-23 bushels. He also makes good use of high-nitrogen fertilizers and straight-nitrogen materials on corn and pasture for his breeding herd of 35 Herefords.

Ray Whetstone (right) talks over good fertilization practices with his county agricultural agent, Herbert H. Hadley.



Bigger yields for farmers mean better business for you

Time and again it has been proved that high-nitrogen fertilizers yield a profitable return to the farmers who use them. And they can be equally profitable to mixers and dealers who sell them.

A little extra sales effort on high-nitrogen fertilizers will pay off for you. Farmers who use them tell their neighbors about the increased yields and demand grows rapidly.

Farmers especially like high-nitrogen fertil-

izers that get a major part of their nitrogen content from U·S·S Ammonium Sulphate. This is a dry free-running material that behaves well in storage and doesn't tend to clog drills or other distributing equipment.

Get full information on U·S·S Ammonium Sulphate from your nearest Coal Chemical sales office, or write directly to United States Steel Corporation, 525 William Penn Place, Pittsburgh 30, Pennsylvania.

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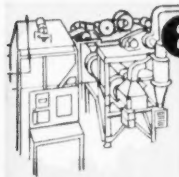
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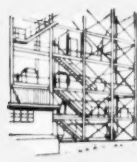
1 MODERN LABORATORIES have both miniature and full-scale facilities—offer free testing service on a few pounds or full carloads of your material. Link-Belt will also lease equipment for work in your plant.



2 PILOT PLANT and testing station, operated in cooperation with a leading university, continually works to find new ways to improve commercial fertilizer... adapt laboratory procedures to plant conditions.



3 ENGINEERING based on broad, practical experience, assures better equipment that often permits use of lower cost ingredients. Other developments have reduced processing time, saved storage space.



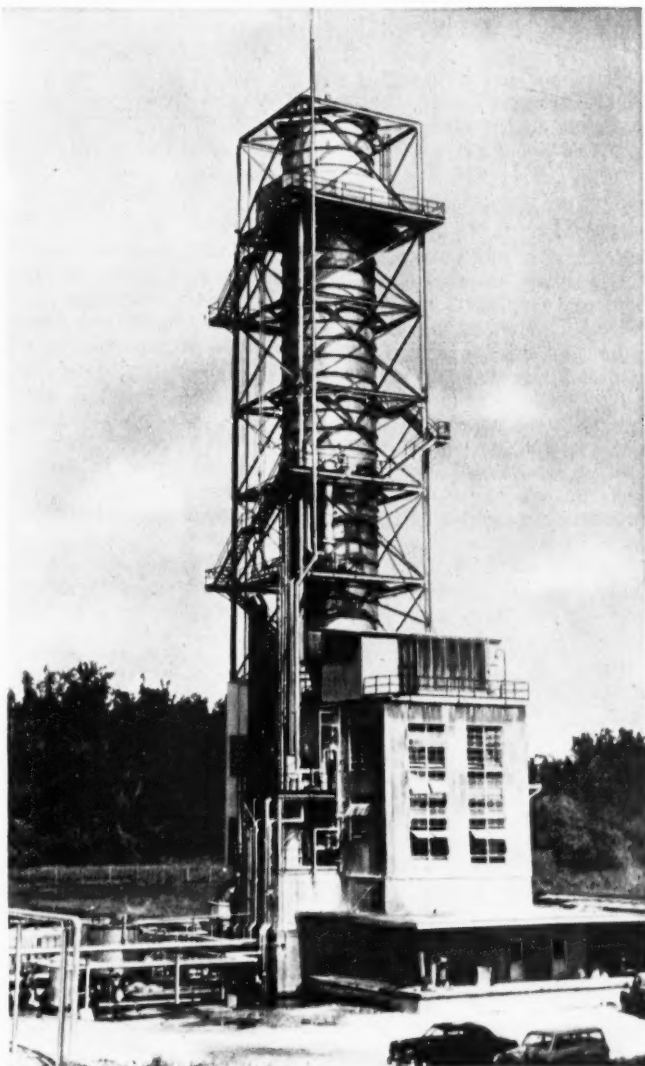
4 LINK-BELT EQUIPMENT includes dryers, coolers, granulating drums, disintegrators, continuous mixers, ammoniators, roll crushers, all types of conveyors & elevators, vibrating screens, all types of chains & power transmission machinery.



5 SKILLED ERECTION CREWS When you rely on Link-Belt as a single source, Link-Belt accepts responsibility for placing your plant in full operating readiness. We will also supervise modernizing existing plants.



6 SATISFACTORY PERFORMANCE can be furnished by Link-Belt. Link-Belt experience includes dry-mix, superphosphate, nitrophosphate, ammonium nitrate, ammonium sulphate, urea, granulation and other plants.



In this southern ammonium nitrate plant, Link-Belt supplied conveying, drying, cooling, mixing, elevating and screening equipment for a fully integrated system.

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13-205

COLORADO

Magma Corporation, are seeking another site in Denver for an additional plant to produce Magnite, their new plant food. Their present plant turns out a daily 30 tons. The new plant is to produce 500 daily tons.

* * *

Food Machinery and Chemical Corporation are in operation with their \$20,000,000 soda ash plant at Westvaco.

FLORIDA

Naco's new \$500,000 plant at Fort Pierce is ready for operation. Back in 1951 their "push button" plant there was announced as ready for operation in this department one month, and reported burned down the next month. The new plant is modern in every respect, with mechanical handling throughout. Weight of materials is recorded on tape, for example, to avoid error. Bulk materials flow on conveyor systems. The plant has storage space for 7,000 bulk tons, 1,000 bagged tons. It occupies 32,240 square feet of floor space. **O. C. Minton**, vice president of Naco is manager of the Fort Pierce operation.

* * *

Wheeler Fertilizer Co., Oviedo, was recently publicized in Florida papers for its interesting genesis. Part of **Nelson and Co., Inc.**, owned

by **B. F. Wheeler, Sr.**, it was an adjunct to his celery growing activities, which has grown to the point where now the tail wags the dog. Mr. Wheeler's sons-in-law operate the business, with the fertilizer plant in charge of **J. P. Cox**.

* * *

Nutri-Sol Chemical Co., Inc., Tampa, has been granted a charter to deal in fertilizers. Personnel of record: **Eustace A. Ollif, Jr.**; **Clarence B. Nuckols, Jr.**; **Jannes E. Thompson**.

GEORGIA

Piedmont Chemical Co., Athens, is scheduled to be in production as you read this. The plant is located in part of the **Empire State Chemical** building, and has an output of 10,000 annual tons of ammonium sulphate.

ILLINOIS

National Distillers Products Corporation, has announced a new synthetic ammonia and fertilizer nitrogen plant for Tulsa, the first of its kind in the State. A \$7,000,000 project, scheduled for production in January, 1955, capacity will be 50,000 annual tons of anhydrous ammonia, plus facilities for conversion into nitric for ammonium nitrate production. The plant is being built near National's ethylene plant, from which it will get hydrogen.

* * *

Illinois Farm Supply officials ad-

mit they are considering a fertilizer plant in Tuscola, but deny categorically that it will be "by any stretch of the imagination" a \$3,000,000 plant, as had been published in the local press.

* * *

Tuscola, with the addition of the two above reported plants, has become a major chemical center. Some \$84,000,000 of chemical plant construction is underway or definite there, including the **Rauh and Sons** plant, and the **I. M&M** plant, already reported.

* * *

Barry Bros., Inc., with plants and warehouse at Viola and at Rock Island have been purchased by **Edward A. Young** of Viola, and will operate under the trade name of **Agriculture Supply Co.** Agriculture Supply has been in the fertilizer business 27 years. Mr. Young and **Marie C. Young**, secretary-treasurer are the officers. They will manufacture special grades of fertilizer, but the bulk of the business will be dry mixing for spreader-truck application.

* * *

Mid-States Fertilizers, Inc. has incorporated two more bulk plants, at Atterbury and at Belvidere. Their other bulk plants, each separately incorporated, are at Mt. Auburn, Narita, Hallsville and Owaneco. Incorporators listed in each case are **B. H. Bass, Jr.**, **Earl C. Abbott**, **Shelby T. Wilson**.

MARYLAND

Central Chemical Corporation, Hagerstown, has sold its 50% interest in the fertilizer and insecticide plant operated at Lebanon, Pennsylvania, under the corporate name of **Central Chemical Corporation of Lebanon**, to **Vernon Bishop**, who now becomes full owner of the business at Lebanon and will change the corporate name. Central Chemical, of which **Franklin M. Thomas, Sr.**, is president, owns and operates nine fertilizer and insecticide plants in Maryland, Pennsylvania, Virginia and New York.



Plant aerial photo, showing progress in construction of The Davison Chemical Corporation's \$12,000,000 plant for triple superphosphate manufacture at Bartow, Fla. Scheduled for completion late this year, the plant will have an annual capacity of 200,000 tons. Plans for uranium recovery have not been completed. Building at right most nearly completed is finished product warehouse, 325 feet long. Large concrete silos near center are for storage of phosphate rock; erection of the main process building has just been started adjoining the silos.



Around the Map

MISSOURI

Lange Brothers, Inc., St. Louis, plans an \$8,000,000 plant at Mexico, Mo., to use the **St. Gobain** equipment and nitric acid equipment to be fabricated in Germany by **Bamag Maguin**. The plant includes production capacity for anhydrous ammonia, nitric acid, phosphoric acid, and mixed fertilizer. **Dewey K. Lange**, secretary-treasurer, making the announcement, says the plant will be the first of its kind in the Western hemisphere.

The General Industrial Development Corporation, New York City, is representing the foreign firms in the transaction. No date has been set for beginning work on the plant, which will be located on a 55-acre site two miles east of Mexico.

Missouri Farmers Association's \$3,500,000 plant at Joplin was dedicated July 22, in the presence of city and State officials. MFA president, **F. V. Heinkel** called the new plant (which was described in this department last month) as "a symbol of our way of life."

NEBRASKA

Nitrogen Division's plant at La-Platte is underway, now that the problem of gas supply has been cleared. As has been reported here, the plant will produce around 75,000 annual tons of anhydrous ammonia, a large portion of which will be converted into urea via the recycle process developed by Nitrogen Division research.

Falls City Fertilizer, Inc., having completed conversion of the round-house plant reported here previous-

ly, is in production with an annual 10,000 tons of mixed fertilizer.

General Fertilizer Corporation, South Fremont, is in operation in a plant 80 by 120 feet, with 25 employees. It is operated by **Stewart Daniels**, a chemical engineer who promoted the project, and is its vice-president. Other officers are **W. A. Koepplin**, president; **Vicior Keilstrup**, secretary-treasurer, **J. M. Rice**, director. The corporation is capitalized at \$200,000. Annual capacity of the plant, 20,000 tons. They plan to produce 6 or 8 analyses, under the brand name GFC.

OHIO

Virginia-Carolina has announced definite plans for the \$1,000,000 plant to be located near the **Fernald Atomic Energy Installation**, near Cincinnati. The plant will produce phosphoric acid, sodium tri-polyphosphate and other sodium phosphates, according to President **Joseph A. Howell**. Construction will begin immediately.

Ferro Corporation, Cleveland, is test-marketing **Plant-A-Bar**, a bar composed of fritted trace elements, NPK and filler. Seeds are planted directly in cuts in the bar, which is then placed in the soil, and some of the crumbled bar is used to cover the seeds.

OKLAHOMA

Phillips Chemical, Bartlesville, has patented a process to extract ammonium sulphate and calcium carbonate from gypsum, which is

a by-product of their superphosphate production. Patent number is US 2,640,757.

PENNSYLVANIA

GLF has formally dedicated its new plant in Union City with guided tours and a chicken barbecue. **J. C. Crissey**, director of the co-op's building division was in charge of the program, and other GLF executives participated.

SOUTH CAROLINA

Southern Agricultural Chemicals, Inc., of which **W. H. Tiller** is president-treasurer, has recently completed an addition that doubles the size of its plant located north of Kingstree.

The concern manufactures insecticides, fungicides and rodacides for agricultural use under the trade name of **Royal Brand**, shipping it to retailers and distributors in the coastal Carolinas. According to Mr. Tiller, an emulsion plant for making liquid sprays is located in the new section.

TENNESSEE

Ruhm Phosphate & Chemical has transferred headquarters from Evanston, Illinois, to Columbia. President **Oliver M. Babcock** has purchased an ante bellum estate near Columbia, known as "Rattle and Snap" and will occupy it with his family when extensive restoration work has been completed.

Bemis Bro. Bag Company has moved its manufacturing operations in Memphis to a new, modern, 120,000 square foot building at 1975 S. Latham. Efficient operation and the comfort of personnel are both stressed in the one-story steel, concrete and brick building with an 8,000 square foot of air-conditioned and acoustically treated office.

TEXAS

Empire Chemical & Supply Co., Inc. Mission, will produce fertilizers and farm and industrial chemicals. They plan soon to build plants throughout the country. The opera-

tion is jointly owned by **Hayes-Sammons Chemical Co.**, Mission, and **Charles F. Lunsford**, who formerly managed the **W. R. Grace & Co.** agricultural chemical division. They have also formed **Empire Chemical & Supply Co.**, with Latin American outlets, to handle sales.

* * *

Southwestern Fertilizer and Chemical, El Paso, as the result of neighbor trouble, operated its plant "only when the wind is right" until odor control devices were installed recently. According to **R. B. Kerley**, one of the owners, plans are being made to change production to a non-odorous type of fertilizer.

VIRGINIA

Nitrogen Division has announced **Sodan**, a new solution being made only at the Hopewell plant, which is 21½% nitrate of soda and 47½% ammonium nitrate, and is designed for direct application. It has no vapor pressure, so can be applied on top of the soil. It is non-corrosive.

* * *

C. S. Mundy Quarry, are testing an electrically heated screen for sifting agricultural lime, to prevent clogging.

UTAH

Wilson & Geo. Meyer & Co., Intermountain, with head offices in Salt Lake City, Utah, was announced in San Francisco.

The new company will act as distributor for the phosphatic fertilizer products of the \$5,000,000 plant of **Western Phosphates, Inc.**, now under construction at Garfield.

John Foster of Portland, Ore., has been named manager of the new firm's Salt Lake City offices. For the past several years he has been in charge of the Portland office of the parent firm of **Wilson & Geo. Meyer & Co.**, 102-year-old coast-wide distributors of many of the world's leading agricultural and industrial chemicals.

Wilson Meyer will head both firms. Other officers include: **L. N. West**, executive vice president; **Ralph S. Waltz**, vice president and

sales manager; **Thomas Harris**, vice president; **Jeffery W. Meyer**, secretary and **Theodore I. Stone**, treasurer.

The **Western Phosphates, Inc.** Garfield plant is scheduled for completion early in 1954 with an initial output of more than 60,000 tons annually of treble superphosphate, ammonium phosphate and liquid phosphoric acid, all in heavy demand in the agricultural West.

The plant is jointly owned by **American Smelting and Refining Co.**, **Kennecott Copper Co.** and **Stauffer Chemical Co.** The Meyer firm has for many years distributed Stauffer's superphosphate production from plants at Richmond and Los Angeles, Calif., and at Tacoma, Wash. It also distributes other agricultural and industrial chemicals from offices and warehouses in San Francisco, Los Angeles, Fresno, Portland and Seattle.

WASHINGTON

Shur-Crop Corporation's president, **M. V. Wolfkill**, announces that their plant at Monroe will be in operation by early Fall, though purchase of equipment is still under way and construction will not begin until purchases have been completed. In addition to Mr. Wolfkill, officers are: **R. G. Herzog**, vice-president and plant manager and **V. J. Wolfkill**, treasurer.

AUSTRALIA

Broken Hill Associated Smelters Pty., Ltd. will be in production this fall with their new contact sulphuric acid plant. Later sulphur gases recovered from the roasting of lead concentrates will be added.

CANADA

Link-Belt Limited, Scarborough, Ontario, recently held formal opening of their 72,000 square foot plant, with more than 500 civic leaders, engineers and industrialists as visitors.

HAWAII

Pacific Chemical & Fertilizer and the **Honolulu Gas Company** are

holding preliminary discussions which may lead to the erection of a \$7,000,000 anhydrous ammonia plant. Big sugar plantations have already contracted to buy liquid nitrogen from the mainland, according to **Brea Chemical** representative, **Jack Sturgess**. A technical problem of application which must be solved is the difficulty of the "trash blanket" of cane matter which cover the fields, but as 57% of Hawaii's cane land is irrigated, nitrogation may be employed.

INDIA

The State Government of Bihar is setting up a modern superphosphate factory at Sindri, near India's large ammonium sulfate factory.

The superphosphate factory, estimated to cost \$1,470,000, is expected to go into production in 1954. It will have a capacity of 240 long tons a day, sufficient to meet the needs of the State of Bihar for some time to come.

ISRAEL

A memorandum written by the Israel Minister of Finance, **Levi Eshkol**, outlines the ambitious plans of that new country in the fertilizer field:

"The first shipment of phosphates abroad focuses fresh attention on our progress thus far in the promising chemicals industry and future plans in this important field. We look to our phosphatic and other mineral wealth as a future major asset in our economy.

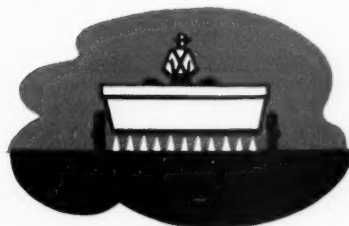
It is significant that our first trial shipment of phosphates should have coincided with Sunday, June 14, with a nationwide effort in the United States on behalf of State of Israel Bonds.

"A very real and practical link exists between this effort and the exploration, development and expansion of our mineral resources. To date, close to IL. 4,000,000 of the \$115,000,000 in cash raised in America through State of Israel Bond investments has been directed toward unearthing our mineral resources, including phosphates, copper, potash and other valuables in the field.

DAVISON **GRANULATED** **Superphosphate** **3 WAY** **CONTROL**



STORAGE CONTROL—No caking or lumping while in storage.



APPLICATION CONTROL—No dusting or bridging; drills free and even.



FOOD CONTROL—Supplies plant food at a uniform rate.

Now it is possible for you to store superphosphate without fear of its caking . . . that is, if it is DAVCO GRANULATED SUPERPHOSPHATE. DAVCO Granulated Superphosphate will not become hard or caked . . . it is easier to apply in the field because there is no dusting or bridging over in the drill.

DAVCO Granulated Superphosphate gives complete coverage in the field . . . drilling freely and evenly . . . supplying each plant with a uniform quantity of nutrient phosphorus.

Get DAVCO Granulated Superphosphate . . . the superphosphate that gives you the added sales points through its 3-way control.

Progress Through Chemistry

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PRODUCERS OF: CATALYSTS, INORGANIC ACIDS, SUPERPHOSPHATES, PHOSPHATE ROCK, SILICA GELS, SILICOFLOURIDES AND FERTILIZERS

August, 1953

59

"The major objective of phosphate mining at present and for the next three years is to obtain the raw material for processing at home in order that Israel's growing agriculture be provided with the basic fertilizers it requires. Our future plan calls for considerable foreign shipments and competition on the world-wide market.

"Our two-phase program for the development of a ramified chemical industry, is local throughout. The phosphates and other minerals are to be found in our own backyard, the Negev, around Kurnub and to the South. They are to be processed on our front porch, the great Fertilizers and Chemicals, Ltd., on the outskirts of Haifa.

"Significant strides in the expansion of the Fertilizers and Chemicals, Ltd., which even today is the largest single industrial enterprise in Israel, have been recorded in the past year. In 1952 Fertilizers and Chemicals produced 24,500 tons of single super phosphates. This covers 30 per cent of our local require-

ments. With the completion of a new sulphuric acid plant which is expected to begin operations in the middle of next month, Fertilizers and Chemicals will be able to cover the country's entire requirements for fertilizers. In anticipation of this, the Government has ceased to issue import licenses for fertilizers.

"This new plant, together with the one which has been in operation since 1949, will produce 270 tons of sulphuric acid per day, thus enabling Fertilizers and Chemicals to manufacture the 85,000 tons of simple phosphates needed at home.

"Another phase of expansion being undertaken by Fertilizers and Chemicals, a firm in which the Government with the aid of State of Israel Bond proceeds has invested IL. 2,256,066., is the construction of a phosphoric acid plant capable of producing 30 tons per day and making possible the manufacture of triple-superphosphates. This sister plant is scheduled to begin operations in May 1954.

"To meet the growing require-

ments for skilled personnel to man Fertilizers and Chemicals, the company now employs 851 men, including an administrative and engineering staff totalling 270. The production plants presently operate on a continuous three-shift schedule."

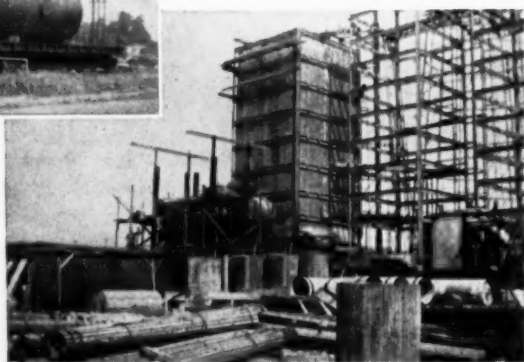
ITALY

Montecatini's Societa Akragas is building a superphosphate plant at Porto Empedecle, Sicily, which can turn out either 50,000 annual tons of superphosphate or 30,000 of triple superphosphate.

Phillips Moves Houston Office

Effective August 1, 1953, the Houston, Texas, fertilizer sales office of Phillips Chemical Company, a Phillips Petroleum Company subsidiary, has moved from 604 National Bank Building to 1020 East Holcombe Boulevard.

R. D. Evans is manager of the Houston fertilizer sales district.



... Lead Lined Equipment or Construction of Complete Acid Plants

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Personals . . .

Louis Bromfield, the newspapers out that way report, tried his hand at being salesman in a department store for a fertilizer he and some friends are promoting called "Fertilize." After a day of answering questions he went back to Malabar. The newspaper story says he "again denied reports that he was ready to abandon Malabar and go to India, a monastery, Texas or some other equally improbable place." Fertilize is reported to be a finely pulverized NPK with 18 trace elements.

William S. Ritnour, it is a special pleasure to report, has been promoted to Secretary-Treasurer of NFA. For 20 years he has been a staff member, and assistant Secretary-Treasurer.

Arthur W. Mohr and **Ernest Hart**, respectively past and present president of **National Agricultural Chemicals Association** were both recently honored. Mr. Mohr, who is president of **California Spray-Chemical** was honored for his 30 years of service with them. Mr. Hart, who is executive vice president of **Food Machinery and Chemical Corporation**, received an honorary doctorate from Michigan State College. Among other things, the citation said: "You helped develop an important new segment of American industry."

Max F. Mueller has been named chief technologist of **Grace Chemical's** new \$19,000,000 nitrogen plant going up near Memphis.

Three new regional sales directors for Chase Bag: J. A. Brewster, Western; J. H. Counce, Southern; J. P. Grady, Eastern. Not shown is Harrison B. Rue, promoted to manager of the Buffalo branch.

J. M. Shepherd, for 15 years; **R. M. Daniel**, for 10 years, both of the Atlanta sales office of **Virginia-Carolina**, have been awarded service emblems.

N. A. "Steve" Carlsen has joined the Seattle staff of **Wilson & Geo. Meyer & Co.**, San Francisco.

At the same time, it was announced that **Thomas R. Cushing**, has been transferred to the San Francisco office, where he will manage phosphatic fertilizer sales of the firm's fertilizer department, where he will be associated with **Ralph S. Waltz**, department manager, in the sale and distribution of the firm's agricultural chemicals throughout the eleven Western States.

John N. Hooper has become manager of the Portland offices succeeding **John A. Foster**, who has been named manager of the Salt Lake City offices of **Wilson & Geo. Meyer & Co. Intermountain**, a separate company newly formed to distribute the phosphatic fertilizer products of the \$5,000,000 plant of **Western Phosphates, Inc.** now under construction at Garfield, Utah. (See map).

S. E. Shelby has been promoted by **Federal Chemical**, Louisville, from head of the engineering department to general production manager of their plants. **T. M. Dues** has been made division sales manager of the Louisville area.



C. W. Mitchell, who has been made executive vice-president of Nyotex Chemical, Houston, a mutually owned subsidiary of Consolidated Chemical Industries, Inc., Stauffer Chemical, and Harshaw Chemical. He has been 24 years with Consolidated.

Truman E. Laningham has joined the basic chemical department of the **Eston Chemicals** division of **American Potash & Chemical**.

Hugh W. Sloan, vice-president of St. Regis Sales Corporation, sales subsidiary of **St. Regis Paper**, has joined their Canadian company, where he will assist **Thomas H. Cosford**. **Harry A. Hughes, Jr.**, Eastern district sales manager of Multiwall division has been elected a vice-president of the sales corporation. **Howard C. Peterson, Jr.**, district manager for the Southwest has also been made a vice-president of the sales company. **Harry W. Walker II** is working out of the new multiwall bag sales office in Dallas, Texas, which is located at Office #4, 25½ Highland Park Shopping Village.

Charles E. Workman, who has been made assistant salesmanager, Virginia-Carolina fertilizer division. He joined this staff in 1937.



Melvin H. Baker, chairman of **National Gypsum**, has been honored with a degree of Doctor of Science in Business Administration by the University of Maryland. **Frank B. Phillips, Jr.** is in charge of the new district sales office recently opened in New Orleans at 5300 Tchoupitoulas Street.

Robert Leach has become superintendent of the Columbus, Indiana, plant of **Indiana Farm Bureau**. He has been assistant superintendent of the Indianapolis plant.

A six-member advisory committee to help with regulations pertaining to liquified fertilizer was named by **Roy Freeland**, secretary of the Kansas State Board of Agriculture.

Representing Kansas State College on the committee will be **William H. Honstead**, associate professor of chemical engineering. Others who will serve on the committee include **George F. Klein, Jr.**, chief



A. F. G. Raises, who has been made manager of the New York general sales division of Bemis Bro. Bag Co., and C. W. Akin, who succeeds him as assistant director of sales in the St. Louis general offices.



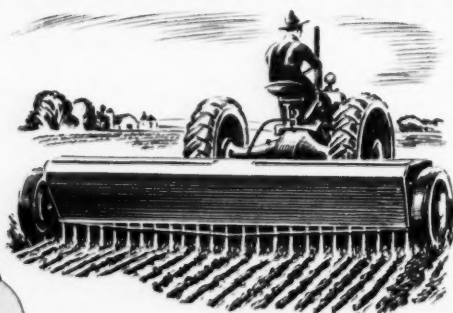
engineer of **Spencer Chemical Company**, Pittsburg and **George O. Gigs-tad**, Nortonville, **Nitro Fertilizer Company**, Nortonville.

The committee will pass on the proposed regulations for the safe handling, storage and transportation of liquid fertilizers in use in Kansas.

Steve Tatem has been transferred to the management of **Swift & Company's** Texas plant food division. He

is president of CFA now in his second term. He will be succeeded by **Henry C. Hopewell** in Los Angeles. At the Atlanta plant food division, four changes have been made—**J. E. Corgill** to field representative; **J. L. Craighead** to the Wilmington division as assistant manager; **J. F. Denham** has been transferred to Atlanta where he will be assistant auditor; **J. C. Neilson, Jr.** had been named assistant manager of the plant food division.

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Columbus, Ga.
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Greensboro, N.C.
Houston, Texas
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Jeffersonville, Ind.
Montgomery, Ala.
N. Kansas City, Mo.
Nashville, Tenn.
New Orleans, La.
Norfolk, Va.
Presque Isle, Me.
Sandusky, Ohio
Siglo, Tenn.
Wilmington, N.C.
Winona, Minn.

Also sales offices in Havana,
Cuba and San Juan, Puerto Rico

Raymond P. Wiggers, formerly ad-manager of **The Frank G. Hough Company**, and with them winner of the Putnam Award, and the only two-time winner of that \$1000 recognition of "the best use of industrial advertising and documentation thereof" has joined **Glenn-Jordan-Stoetzel, Inc.**, Chicago advertising agency, as vice-president.

Leo J. Diamond has been made manager of the newly created Southern district sales office of the chemical division of **Koppers Co., Inc.**, which will serve 11 states.

Dr. Joseph D. Campbell has been appointed horticulturalist in the Agricultural Department of **Mathieson's** agricultural chemicals division.

V. G. Vasbinder has been promoted from assistant to branch plant manager of **Davison's** mixed fertilizer plant at Lansing, Michigan. He has been with them since 1932.

Vasbinder Davison Manager At Lansing Fertilizer Plant

Mr. Vasbinder moves up to fill the post formerly occupied by **B. C. Manker**, who in July, 1952, was made district manager at Lansing, with a number of Davison fertilizer plants under his supervision.

Vincent L. Rebak has been appointed New York district sales manager for **Grace Chemical**. **C. J. Bown** has been named Memphis district manager. **D. Brittain Briggs** has joined them as technical assistant in the new N plant near Memphis.

Burton Ford, **St. Regis Sales Corporation** suffered a heart attack Sunday July 12 which will probably lay him off for a couple of months at his home: 507 Delaware Avenue, Bethlehem, Pa.

D. E. Tobey has been appointed sales representative of **Hammond Bag & Paper**, with Kansas City as head-

quarters. He succeeds **G. R. Wiggins**, who has been transferred to the St. Louis territory.

Leon Holliday has joined **Thurston Chemical**, Joplin, Missouri, as accounts supervisor.

Spencer L. Lott, controller, **Smith-Douglass** has been elected a director of the Richmond Control of the Controllers Institute of America.

Robert A. Bell has been elected assistant treasurer of the **Richmond Guano Company**.

Major promotions for two faculty members in the School of Agriculture at **North Carolina State College** became effective August 1.

Dr. William E. Colwell assumed his duties as assistant director of the Agricultural Experiment Station in charge of tobacco research.

At the time, **Dr. E. T. York, Jr.**, who joined the college faculty in 1949, replaced Dr. Colwell as head of the Agronomy Department.

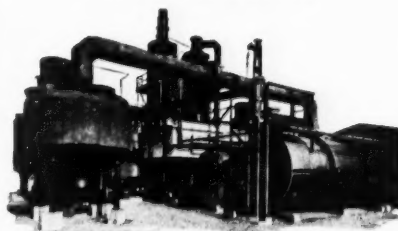


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Chemico's services cover every detail in design and construction of sulfuric acid plants, acid concentrators, complete fertilizer plants and P-A Venturi Scrubbers for fluorine fume elimination. Chemico's performance guarantees are backed up by 38 years of experience. Consultation involves no obligation.

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PARTIAL PROGRAM FOR OCTOBER 16 MEETING ASSN. AMERICAN FERTILIZER CONTROL OFFICIALS

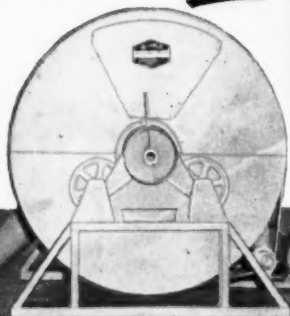
Presidential Address	Parks A. Yeats	Phosphorus	J. F. Fudge, College Station, Texas
Address	Dr. Russell Coleman, Pres.	Potash	R. W. Ludwick, State College, N. M.
	National Fertilizer Association	Calcium and Magnesium	W. B. Griem, Madison, Wis.
Address	Paul T. Truitt, Pres.	Manganese	J. B. Smith, Kingston, R. I.
	American Plant Food Council	Boron	R. C. Berry, Richmond, Va.
Problems for the Control Officials (or another suitable subject)	E. A. Epps, Louisiana	Zinc and Copper	Gordon Hart, Tallahassee, Fla.
Evaluation of Secondary Elements in Fertilizers—	Aaron Baxter, Coke Oven Ammonia Research Bureau, Inc.	Mixing and Segregation	E. W. Constable, Raleigh, N. C.
Present Status of Surface Wetting Agents for fertilizer use	Dr. V. Sauchelli, Davison Chemical Corp.	Registration Forms	John L. Managhan, Topeka, Kansas
Progress in Fertilizer Granulation—	J. O. Hardesty—R. M. Magness	Publications	Parks A. Yeats, Oklahoma City, Okla.
Foliar Application of Plant Nutrients	Dr. J. B. Hester, Campbell Soup Company	Specimen Labels	F. W. Quackenbush, Lafayette, Ind.
Report from Investigators:		Tonnage Reports	A. H. Harris, Raleigh, N. C.
General Terms	M. H. Snyder, Charleston, W. Va.	Pesticides in Fertilizers	A. B. Lemmon, Sacramento, Cal.
Nitrogen Products (Organic)	M. P. Etheredge, State College, Miss.	Specialty Fertilizers	E. A. Epps, Jr., Baton Rouge, La.
Nitrogen Products (Inorganic)	J. W. Kuzmeski, Amherst, Mass.	Bulk Fertilizer	M. B. Rowe, Richmond, Va.
		Reports from Executive Committee	
		Reports from States Relation Committee	
		Election of Officers.	

Up to 2,000 lbs. Thoroughly Blended Feed or Fertilizer...in 3 Minutes!

- **EXCLUSIVE NEW BLENDING ACTION**—new 2-way movement of feed or fertilizer (side-to-side and end-over-end) for fastest, most thorough blending method on market!
- **MINIMUM FLOOR SPACE**—only 8' x 15'
- **CONVENIENT FLOOR LEVEL HOPPER**—easily filled by bag, wheelbarrow, conveyor or truck.
- **FEW MOVING PARTS**—for longer life, little upkeep.
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Now you can produce up to a ton of inseparable, homogenous material (feed or fertilizer) in less than three minutes! The new BAUGHMAN BLENDER enables you to offer a profitable new Customized Blending Service to your customers—without a large investment in space or capital. Adaptable to small-scale or continuous operations.

**WRITE TODAY for
Bulletin No. A-377**

Safety

Swift's Celebrate Safety With Big Plant Barbecue

On July 3 there was a big day at Swift's Varn Mine near Fort Meade, Florida. Having completed three years without a lost-time accident, all employees were served a big barbecue. Woodrow Justice, superintendent pointed out "The slogan 'Accidents Don't Just Happen' is a true one." Manager H. P. Gould extended congratulations to all.

Noralyn Mine Gets Award

On July 15 International Mineral and Chemical's Noralyn mine was awarded the Sentinel of Safety Trophy by the U. S. Bureau of Mines for the nation's best safety record in open pit mining. The award and certificates will be presented at a later date.

New Safety Manual Available

Working Together for Safety is the title of the National Safety Council's new employee rules manual. The handy 32-page booklet contains instructions in safe work habits applicable to employees in most plants.

Bound in a heavy paper cover and printed in two colors. Working Together for Safety will serve as a permanent guide and handy reference for each employee. For a free sample copy and prices for quantities, write the National Safety Council, 425 North Michigan Ave., Chicago 11, Ill.

Safety Council Issues Handbook and Film Guide

The National Safety Council's new 94-page "Handbook of Accident Prevention for Business and Industry" is a convenient safety guide for the manager of a small business or the supervisor of a department in a large organization.

It shows how to set up and maintain a safety program, including such subjects as plant layouts, materials handling, housekeeping, machine guarding, electrical hazards, pressure vessel hazards, first aid, fire prevention and personal protective equipment. For further information and prices, write the National Safety Council, 45 N. Michigan Ave., Chicago 11, Ill.

The Council has just published the 1953-54 edition of the National Directory of Safety Films, which provides the plant safety man with a comprehensive listing of 963 motion pictures and slidefilms for use in training personnel in occupational accident prevention. Films on home and traffic safety are included for the off-the-job safety program.

Workers employed by member companies of the National Safety Council had the safest year on record in 1952. They had fewer on-the-job accidents and those they had were less serious.

Serving the FERTILIZER INDUSTRY

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Magnesia for Agriculture

EMJEO (80/82% Magnesium Sulphate)
Calcined Brucite (fertilizer grade) 70% MgO
Calcined Magnesite 85 to 95% MgO

POTNIT

(95% Nitrate of Potash)
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Special Mixtures and Soluble Fertilizers

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USDA ASKS FARMERS OPINION ON PROGRAM PLANNING

Farm programs based on suggestions of farmers themselves are the goal of a procedure made public by Secretary of Agriculture Ezra Taft Benson.

Secretary Benson said he has forwarded letters to representatives of major farm organizations, the land-grant colleges and experiment stations, and other agricultural groups over the country requesting their judgments and views on what are sound principles upon which farm programs should be based. These relate to such problems as price supports, commodity marketing, and foreign trade.

The Secretary indicated information would be furnished members of the Congress as legislation is considered, many of whom have requested "grass roots opinion" on farm problems.

"We have had fine response from groups over the entire country," the Secretary said. "I have designated six of my top staff members as a committee to prepare a preliminary digest of the reports received, for presentation to the National Agricultural Advisory Committee."

The national committee reviewed the procedure before the work was started and will advise on how best to carry forward the work.

Chairman of the Department committee is Under Secretary True D. Morse. Members are: Assistant Secretary J. Earl Coke; R. E. Short, director of the Foreign Agricultural Service; John H. Davis, president of the Commodity Credit Corporation; R. L. Farrington, acting director of Agricultural Credit Services; and Richard D. Aylin, director of Departmental Administration. Don Pearlberg, assistant to the Secretary, is serving as secretary of the group.

In addition, there are some 15 groups made up of Department employees studying various phases of present and proposed farm programs. A review is being made of

62 MILLION ACRES OF WHEAT

Wheat farmers of the Nation will have the opportunity to vote on marketing quotas for their 1954 crop, according to a proclamation issued by the Secretary of Agriculture.

The Agriculture Act of 1938, as amended, requires the Secretary of Agriculture to call for a farmer referendum on wheat marketing quotas if, according to the latest statistics, the total supply of wheat on July 1 exceeds the normal supply by more than 20%, which it did—actually by 48%.

The Secretary explained that two-thirds of the farmers voting in the referendum must approve quotas before they go into effect.

The Secretary July 15 announced a national acreage allotment of 62 million acres for the 1954 wheat crop. He also set August 14 as the date for a referendum among wheat growers on the question of whether to use quotas in marketing the 1954 wheat crop.

the hundreds of letters and reports that have been received from farmers and others offering suggestions and making recommendations.

The Secretary pointed up the non-partisan approach to this farm program study. More than 100 work groups throughout the United States will be participating. These work groups are made up of colleges of agriculture, experiment stations, farm organizations, agricultural foundations, and research organizations.

"Our objective," Secretary Benson declared, "is to get the best judgments from the vast reservoir of agricultural knowledge and experience across the nation. We feel that these will provide us with the elements of sound, grass roots opinions which can be furnished to the Congress as it works on improving farm legislation."

He said that many Republicans and Democrats in both houses of Congress have expressed their feeling that there is room for improvement in our present farm programs.

Indications that these ideas for improvement will be forthcoming are shown by work groups which have responded to the Secretary's letter. All say, in one form or another, "We are putting out best staff members to work on your request."

Farm Mechanization Progress

Much of today's farm mechanization is the result of fundamental research conducted by State agricultural experiment stations and the Department working in close cooperation with industry and farmers, according to the latest annual report on the agricultural experiment stations, released by the U. S. Department of Agriculture. In 1952, there were 4,170,000 tractors on American farms as compared with 1,545,000 in 1940 and 920,000 in 1930. During the past decade the number of motortrucks on the farm has more than doubled. The output per man-hour on the farm in 1951 was 45 percent above that of 1940 and 86 percent above that of 1930.

"However, the degree of farm mechanization in the United States, says R. W. Trullinger, Chief of the Office of Experiment Stations, "cannot be measured adequately by merely counting the number of tractors and other machines on these farms. The true test of the impact of mechanization on farm operations in this country is the effectiveness with which machinery is used and the economy of power obtained in its operation."

Since 1930 the output per man hour on the farm has steadily increased through application of re-

(Continued on page 70)

CAL-MAG OXIDES

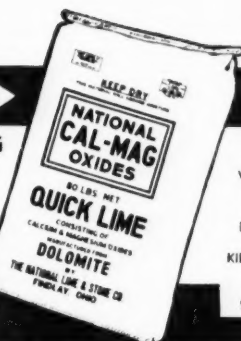
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CaO	58.07
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DOLOMITIC
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and
KILN DRIED RAW
DOLOMITE
(107 TNP)
Screened to size

The NATIONAL LIME and STONE CO.
General Offices FINDLAY, OHIO

Battelle

(Continued from page 19)

of developments in mining machinery and mineral processing. The machinery used to plant, cultivate, and harvest the corn resulted from the work of design and combustion engineers and from improvements made by petroleum and rubber chemists and various other technologists. So it goes in the U. S. technological economy. Nearly every technical gain we make works deviously, but inevitably, to put more food on our tables.

The problem of food has always been a major problem to mankind. The lack of adequate food leads to many social diseases, including war. We are demonstrating in America today that the food problem can be solved. Our revolution in agriculture gives hope for the solution of many of man's century-old problems.

CFA Handbook Published

The Soil Improvement Committee of the California Fertilizer Association has just completed the manuscript of its Western Fertilizer Handbook after more than three years of intensive work. Earle J. Shaw of Los Angeles, Chairman of

the Handbook Subcommittee, announces that the manual will be available for distribution sometime in August. The Handbook is designed for ready reference, being 5 1/4" x 7 3/4" in size with 162 pages. Included will be a number of 4-color reproductions showing plant food deficiency symptoms of various crops and a number of black and white plates depicting application machines, irrigation procedures, etc. In addition to 12 chapters of text, there is a comprehensive glossary of tables, terms and useful conversions.

K. D. Jacob Book On Fertilizer Technology

Dr. K. D. Jacob, USDA has edited "Fertilizer Technology and Resources in the U. S.," a monograph which is a compilation of papers presented at a short course at the University of Maryland in 1950. The book may be obtained from Academic Press, Inc., 125 East 23rd St., New York 10. The price is \$8.50.

New Chain Announced By Beaumont Birch

Beaumont Birch Company of Philadelphia announce a new com-

bination chain for bucket elevators and conveyors. The new chain has from 450% to 600% more metal on the wearing tread of each link. The added metal not only results in more efficient operation but increases the service life of the chain.

When used with Beaumont "Trac-Pull" patented drive wheels, the new chains provide increased efficiency in operation, greater service life and reduced maintenance costs.

Universal Appoints Four New Sales Agents

Four new sales agencies have been appointed by Universal Detergents, Inc., Long Beach, California makers of Udet, Udex, and Udet F, alkyl aryl sodium sulfonates, and Udesolve, a line of aromatic hydrocarbon solvents.

Goldpar Distributors, 137 Riverside Drive, New York, Martin Terr, 59-60 Commercial Wharf, Boston, George E. Moser & Son, Inc., Penobscot Bldg., Detroit and Edward J. Lewis Co., 9 South Clinton St., Chicago have become representatives effective July 1, it was disclosed by B. R. Bryant, general manager of Universal Detergents, Inc.

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Duriron Opens N.E. Office

The Duriron Company, Inc. has announced the opening of a direct sales office in Needham, Massachusetts, to serve the New England area. The office will be headed by Mr. R. W. Henze who has been with The Duriron Company since 1950 serving in the New York and Philadelphia areas.

Simplicity Publishes New Illustrated Catalog

The Simplicity Engineering Company of Durand, Michigan has announced publication of a new 28-page illustrated catalog describing their complete line of Screens, Feeders and Conveyors. Copies can be obtained without cost or obligation by writing to the Simplicity Engineering Company, Durand, Michigan.

S-A Announces Standard Products Division

Stephens-Adamson Mfg. Co. of Aurora, Illinois, announces the formation of the S-A Standard Products



Link-Belt has just released this 16 page book which tells of the role of Link-Belt not only in supplying equipment, but in testing, developing processes, erecting plants and putting them in full operating readiness—a unified responsibility for complete fertilizer plants. Write for Book 2459 to Link-Belt Co., 307 N. Michigan Ave., Chicago 1, Illinois.

Divison. This new department is organized to handle the company's line of centrifugal loaders, car pull-

ers, bin level controls, hoists and winches, speed reducers, conveyor belt cleaners, holdbacks and carriers. These items are now available for immediate shipment from stock. For a complete listing of the units available from this department write for bulletin 653, to Standard Products Division, Stephens-Adamson Mfg. Co., Aurora, Illinois.

Nitrogen Division Announces "Sodan"

A new nitrogen solution, the first to contain nitrate of soda, and accordingly named "Sodan" has been introduced by the Nitrogen Division. It is a clear, colorless liquid, containing approximately 20% nitrogen in the form of sodium nitrate and ammonium nitrate. It is non-corrosive, and is a safe, easily handled and economical means of applying supplemental nitrogen.

Nitrogen Division has announced \$30,000 as grants-in-aid to agricultural colleges for research in fertilizers and other nitrogen chemicals.



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FOR SALE: 2 Glens Falls Rotary Sulphur Burners 14 Feet complete. Excellent Condition. SOUTHERN STATES PHOSPHATE & FERTILIZER COMPANY, P. O. BOX 546, SAVANNAH, GEORGIA.

FOR SALE: ROTARY DRYERS FOR GRANULATION. 2-7' x 60' Rotary Kilns. These make excellent heavy duty long life direct heat Rotary Dryers by installing lifting flights. Other Rotary Dryers in stock: 8' x 54', 6' x 42', 5' x 40', 4'6" x 35', 4' x 30' and 3' x 50'. Send us your inquiries for Jaw, Gyratory and Roll Crushers, Ribbon and Drum Mixers, Pulverizers, Bucket Elevators, Hammer Mills, Vibrating Screens, Belt Conveyors. We buy your idle machinery. Our 36th year. CONSOLIDATED PRODUCTS COMPANY, INC., 14 PARK ROW, NEW YORK 38, N. Y.

POSITION WANTED: Superintendent, Acid Maker or Lead Burner. Twenty years experience in all phases of supervision and manufacture of Commercial Fertilizers. Box 49, c/o Commercial Fertilizer, 75 Third St., N. W., Atlanta, Ga.

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WANTED TO PURCHASE: Fertilizer plant, dry mixing, or acidulation. Box #37, c/o Commercial Fertilizer, 75 Third St., N. W., Atlanta, Ga.

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See Continuous Ammoniator Demonstrated

All fertilizer manufacturers and other industry representatives are invited to attend a demonstration of a continuous ammoniator which has been developed by TVA as a result of its pilot plant studies on the ammoniation of superphosphates. It is believed that this ammoniator, described in detail in the following article, may offer some advantages over conventional batch ammoniation equipment. The demonstration slated to begin at 9:00 A.M. on September 15 at the TVA Chemical Engineering Building at Wilson Dam, Alabama, will include demonstration runs on the production of a 6-12-12 grade using ammoniating solution as the sole source of nitrogen, and the production of a 10-10-10 grade employing sulfuric acid and nitrogen solution addition. The demonstration program is summarized below.

PROGRAM

Date—September 15, 1953

Place—TVA, Wilson Dam, Alabama

9:00 A.M.—Meet in Chemical Engineering Building

10:00 A.M.—Production of 6-12-12

12:00 Noon—Lunch

2:00 P.M.—Production of 10-10-10

3:00 P.M.—Discussion Period

Bear To Speak

At Conn. Field Day

Dr. Firman E. Bear, head of the Soils Department at the New Jersey Agricultural Experiment Station, will be the principal speaker at the 1953 Field Day of the Connecticut Agricultural Experiment Station, it was announced today. The Field Day will be held from 10 A.M. to 5 P.M. on August 19 at the Station's Experimental Farm at Mt. Carmel. Dr. Bear's address, for which he has chosen the title, "Soil — the Substance of Things Hoped For," is scheduled for 1:30 P.M.

World-famed for his contributions to soil research, Dr. Bear is also a popular lecturer before farm

groups. He has been head of the New Jersey soils staff since 1940.

USDA

(Continued from page 66)

search findings. There is every indication that greater improvements in our standard of living in the future, as in the past, will depend largely upon a greater degree of farm efficiency and productivity. The OES Chief also emphasizes that there is a growing trend among scientists and the respective institutions, and among the different institutions and USDA research agencies, to share their knowledge and to pool their efforts to insure the greatest over-all advances in fundamental agricultural research.

OBITUARIES

William Whitley Baker, Jr., 59, Baltimore representative of H. J. Baker & Brother, July 1 at Johns Hopkins after an operation. He was a member of the founding family of the 100-year-old concern.

F. R. Curtis, 59, manager of the Shreveport district sales office of Chilean Nitrate. He had been associated with them for 26 years.

William G. Hyrne, Sr., 64, who retired in 1948 as superintendent of Southern Fertilizer and Chemical, died in Jacksonville June 24, after a long illness.

W. Gordon McCabe, 79, who established the McCabe Chemical Company, Charleston, S. C., died June 14 at his estate in Flat Rock, N. C.

Walter Moore, 77, director of Delta Fertilizer, Helena, Missouri, July 21 in that city.

Edeard Platt Pfaff, Sr., for 20 years representative of the NACO Fertilizer Co., Jacksonville, Fla., died suddenly in the office July 31.

Herman F. Precht, secretary of the Reliance Fertilizer Company, Savannah, Georgia, died suddenly there May 27.

L. W. Rowell, who retired in 1944 after 44 years with Swift & Co., and from 1927 to 1929 vice-president of NFA, died in Chicago July 12.



FARMERS' ANGLE

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